Smithsonian

March 1982

In those good old nickelodeon days (p. 76)

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March 1982

Smithsonian

Volume 12, Number 12

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Smithsonian (ISSN 0037-7333) is published monthly by the Smithsonian Associates, 900 Jefferson Drive, Washington, D.C. 20560.
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Subscription price $14 a year in U.S. possessions, $22 elsewhere.
Single copy price $1.25. Second-class postage paid at Washington, D.C.
Editorial offices, 900 Jefferson Drive, Washington, D.C. 20560.
Advertising and circulation offices at 420 Lexington Ave., New York, New York 10170.
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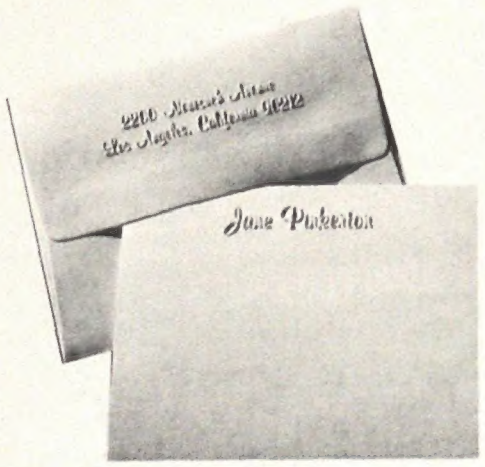

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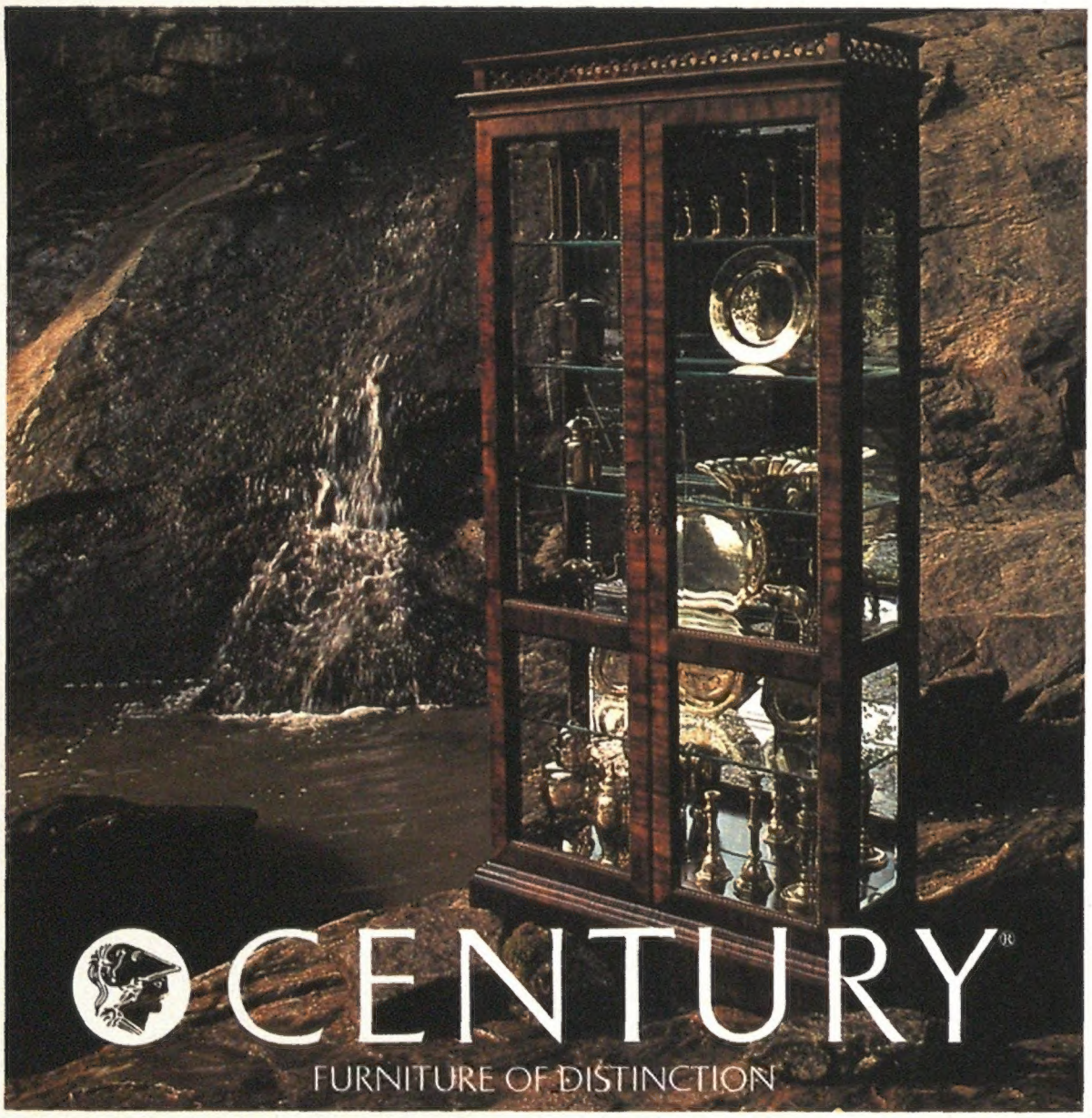

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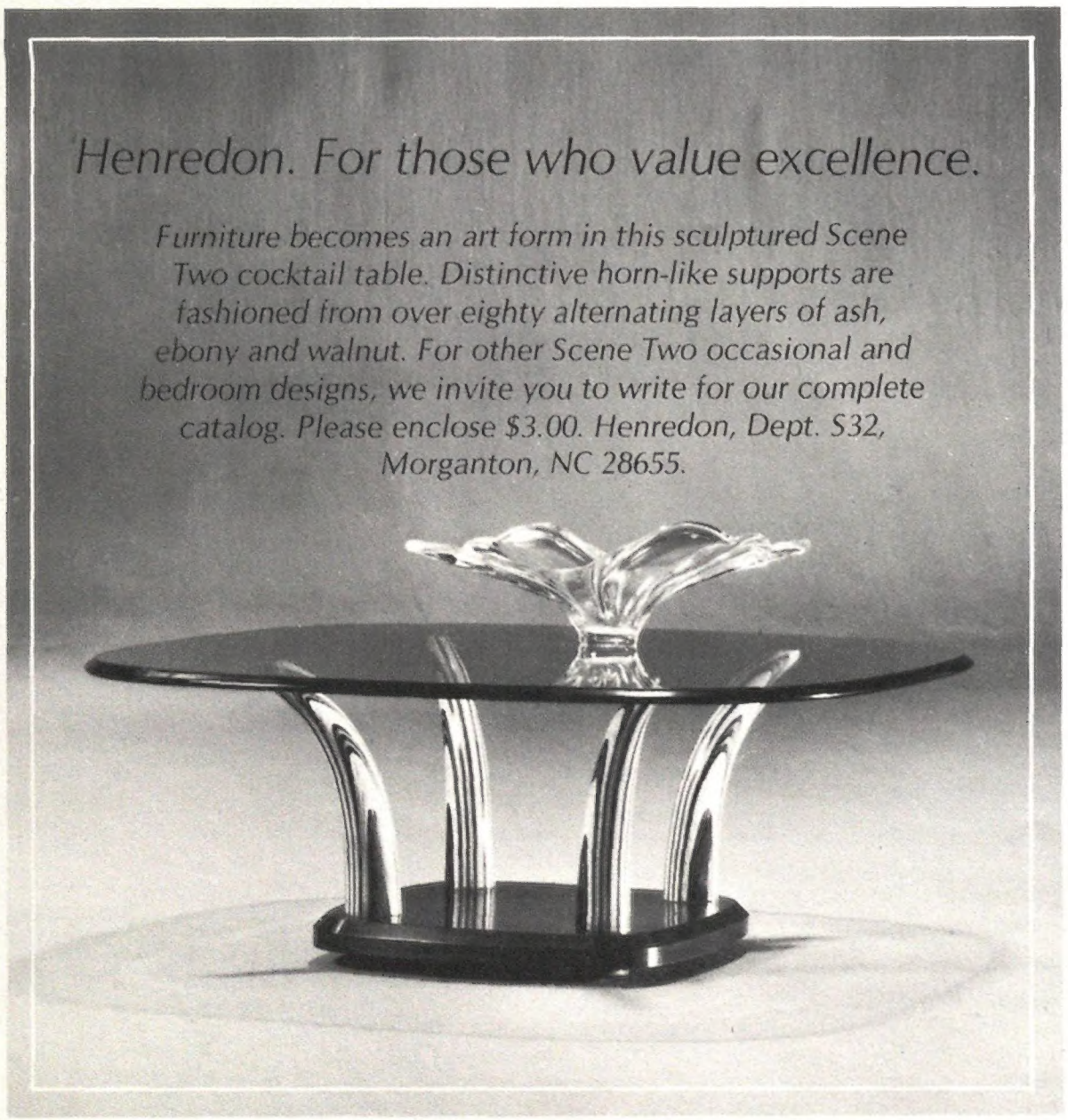
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Since 1972, 63% fewer children died as a result of accidental poisoning—and thousands of injuries due to accidental poisonings were prevented—thanks to your pharmacist, the Poison Prevention Packaging Act, and child-resistant closures.

Our Screw-Loc® vial was designed specifically to meet the needs of the Poison Prevention Packaging Act and it will function only one way: in a child-resistant mode. Even if you don't have little ones living in your house—grandchildren or neighborhood kids are just as vulnerable to accidental poisoning as your own children were when they were young.

Kids do get into things they shouldn't. They always have and they probably always will. So it's up to us to realize that, and do what we can to protect them.

One thing we can do is take a few extra seconds to open child-resistant containers.

Next time your prescription is filled in a child-resistant container, thank your pharmacist for helping you look after the children.

OWENS-ILLINOIS
Prescription Products
Toledo, Ohio 43666

You can now acquire the privately commissioned works of great artists of our time

...including Picasso, Grant Wood, Thomas Hart Benton, Norman Rockwell.
HERITAGE CLUB FINE ART PRINTS...*from the Archives of the Heritage Club*

Picasso

Shown is *Lysistrata* executed for Heritage in 1934-5, a fertile time for the master...a time of minotaurs, lithe figures and grecian line. This work is representative of that period and highly regarded for its clarity and will. The original has been given to the Museum of Modern Art.

In the twentieth century, one of America's most prominent patrons of great artists has been the Heritage Club, renowned publishers of heirloom editions of classic literature. In acquiring fine art and illustration, the Heritage Club—for nearly 50 years—has spared no effort nor expense in retaining the great artists of our time. In 1933, for example, the Club commissioned extensive original works by Pablo Picasso. Similarly, the Club retained Norman Rockwell, Grant Wood, Thomas Hart Benton, Rockwell Kent, and many, many others. In all, the roster of artists who created original art exclusively for the Club reads like a "Who's Who" of twentieth century art.

Fine art prints from the Heritage archives have only rarely been issued. But now, an entire array of fine art treasures can be *yours—through Heritage Club Fine Art Prints.*

Norman Rockwell

Tom Sawyer was part of an extensive Heritage commission given to Norman Rockwell in the Thirties. His results were outstanding—producing some of the most famous of all privately commissioned American art.

This painting gained similar wide fame though it rarely appeared outside the pages of a Heritage book.

Thomas H. Benton

Of all the highly collectible American Masters, perhaps Benton best understood the grandeur of scale. His huge murals gave the American story a drama and legendary proportion that seem evident in *Can't you see nothin'*, privately commissioned in the 40's.

Copyrighted Prints Available Nowhere Else, For Only 9,500 Collectors, Worldwide

For a brief time only, you can acquire museum-quality prints of 25 of the finest works from the Heritage Club archives. Your home can showcase the great artists of the twentieth century—not with common prints available everywhere, but with rare, *privately commissioned, copyrighted* prints issued in a strictly limited edition available nowhere else at any price!

Think of it! You can own your own limited-edition Picasso... Rockwell...Grant Wood...or Thomas Hart Benton! You can enjoy a pride of ownership and joy of appreciation normally reserved for only the very wealthiest collectors!

Spectacular Variety

These prints *explode* with variety, treating your eye and mind to a sumptuous array of styles, colors, shapes and sizes. Here are fine reproduction prints from rich oils, vibrant watercolors, warm woodcuts, intricate engravings and sketches, radiant pastels, powerful stone lithographs. Here are large format prints reproducing virtually every artistic style and technique known to man!

As a result, your collection will evidence the breadth, diversity and good taste that are the hallmarks of the world's finest art collections.

Unrivaled Quality

These prints will be genuine heirlooms, ranking among the finest produced. Only the best museum-quality papers will be used. These highest quality papers are meant to resist yellowing and cracking for generations to come.

Moreover, the paper will be *individually selected* to highlight each work to its best advantage. For example, the watercolors will be reproduced on *Arches*, the most famous French watercolor paper.

The works depicted in this ad are among those intended for use in this collection. Changes in selection may be made at any time in accordance with the Heritage Club's exclusive and final right to determine the works included in the collection. Print sizes shown are approximate.

Blue and Yellow; John Steuart Curry, 1946, (16" x 25")

Main Street;
Grant Wood, 1944, (12" x 16")

Battle of Tours; Joseph Domjan, 1967, (24" x 32")

All works depicted herein are copyright © The Heritage Club. All rights reserved.

Wind in the Willows;
Arthur Rackham, 1939, (18" x 22")

Likewise, the inks will be of the most expensive, durable kind, so the colors will retain their vibrancy and hue for generations.

A select group of highly respected printers will be retained, each a specialist in particular styles of print, and many of whom have produced prints for important galleries and museums.

Naturally, each print will be produced to achieve the highest standards of excellence. To do this—upon the advice of our expert printmakers—many techniques will be employed. Some prints will utilize laser-photo production technologies, while others, as appropriate, will be "pulled" directly from existing plates, woodblocks or litho stones. Of course, every print will be meticulously inspected to insure perfection before release to collectors.

Matching Serial Numbers and Benefits of the Premiere Collection

Heritage Fine Art Prints will be numbered ...to certify that each is one of only 9,500. Importantly, though, the fine art prints in each individual collection will bear *matching serial numbers* assigned to the specific collector alone and registered in his/her name in the Heritage archives. Thus, you will own a collection of famous-name art prints that are not only *rare,* but which also form *a complete, matching set.* This can't help but enhance their importance and value to the collector.

A Cloth and Leather Portfolio Case...

...will be provided at no additional cost. Crafted of luxurious, hand-worked leather and rich fabric, this custom-made portfolio will allow the safekeeping of your entire collection with an elegance and distinction appropriate to privately commissioned art.

Furthermore, this large portfolio opens to serve handsomely as a self-standing presentation case, enabling you, your family and friends to browse through your prints easily.

Convenient Acquisition Plan and Most Favorable Price

The prints will be issued on the convenient basis of one each month. *They are not available anywhere else.* Yet, knowledgeable collectors will recognize that other comparable prints often sell for as much as $40, $50, even $100 or more. So you may be pleased to learn that the prints in this collection will be priced at only $20 to $30...averaging just *$25 each.* This surprisingly reasonable price is possible only because the Heritage Club long ago acquired the rights to these priceless works by Picasso, Rockwell, Grant Wood and others, *before the peak of their fame*—before the cost of such works put them beyond the reach of all but the wealthiest collectors.

Examine Your First Print Without Obligation

You may examine your first print at no cost or obligation. If for any reason you are not satisfied simply return it in 30 days and we'll permit someone else to acquire the collection you have reserved. A guarantee of satisfaction applies to all the prints. If you are *ever* dissatisfied for any reason, just return the print in question within 30 days for a full refund. And, of course, you may discontinue your collection at any time.

Heritage Club Fine Art Prints
47 Richards Avenue
Norwalk, Conn. 06857

051
Only 9,500 collections will ever be available, worldwide.
No payment required at this time.

Please reserve a complete Premiere Collection of 25 Heritage Club Fine Art Prints by registering an individual serial number in my name.This serial number will be retained for my use alone throughout the Premiere Collection and for as long as I remain enrolled to receive Heritage prints.

Bill me $25* for my first print prior to shipment to me. Ship all further prints at the approximate rate of one per month—billing me $20* to $30* each (an average of about $25 apiece) at the time of shipment.

I understand that if I am not satisfied for any reason, I may return any print within 30 days for a full refund. Also, I understand that either party may cancel this agreement at any time.

As a convenience:

☐ I prefer to pay for my first print now. My check or money order for $25.00 (plus $2.00 for shipping and handling—a total of $27.00) is enclosed. (Make payable to the Heritage Club; Conn. residents pay $29.03 to include tax.)

☐ I prefer to charge my first print, and each subsequent print—at the time it is sent to me—to my:
☐ MasterCard ☐ VISA

Card No. Expiration Date

Signature

*A small shipping and handling charge, usually $2.00, will also be made; Conn. residents pay 7½% tax.
Registration is subject to acceptance. This invitation is non-transferrable.

Secretary Ripley's comments

The view from the castle

The Indian rain forest—silent in winter, noisy in the monsoon—is a unique resource that can never be duplicated

The jungle in winter is mostly deathly still. There was no noise where we were camped, in northeastern India, except the steady, soft rushing of the river beyond our tents. One night we heard a barking deer, the small, shy muntjac of southern Asia. It burst out at intervals, a loud, insistent "gr-ow, gr-ow," very penetrating in the stillness.

The barking deer went on for several minutes, indicating real alarm. Next morning we crossed the river to look for birds. On the farther bank, there in the sand, we found the fresh round pugmarks of a very large male tiger, with the smaller marks of a younger animal, perhaps a nearly grown cub. On our side we found a third tiger's footprints, the toes more pointed —a female, we guessed. They may have been annoyed by the ruckus, but certainly not bothered.

Winter in the jungle sounds anomalous, but here at 27 degrees latitude we are within sight of the outliers of the great Himalayas, already covered with fresh snow above 12,000 feet. Here below we are in evergreen rain forest, the climax type of the world's jungles—found in narrow belts here and there, but fast diminishing nowadays—where the annual rainfall exceeds 200 inches. There are no accurate records of rainfall here in the Namdapha, as the valley is called, but abundant rain falls every month, and I suspect that it reaches 400 inches. The forest litter is squishy underfoot, as daylight is short and the sun penetrates sparingly. The leeches need only the slightest encouragement to be out in full force.

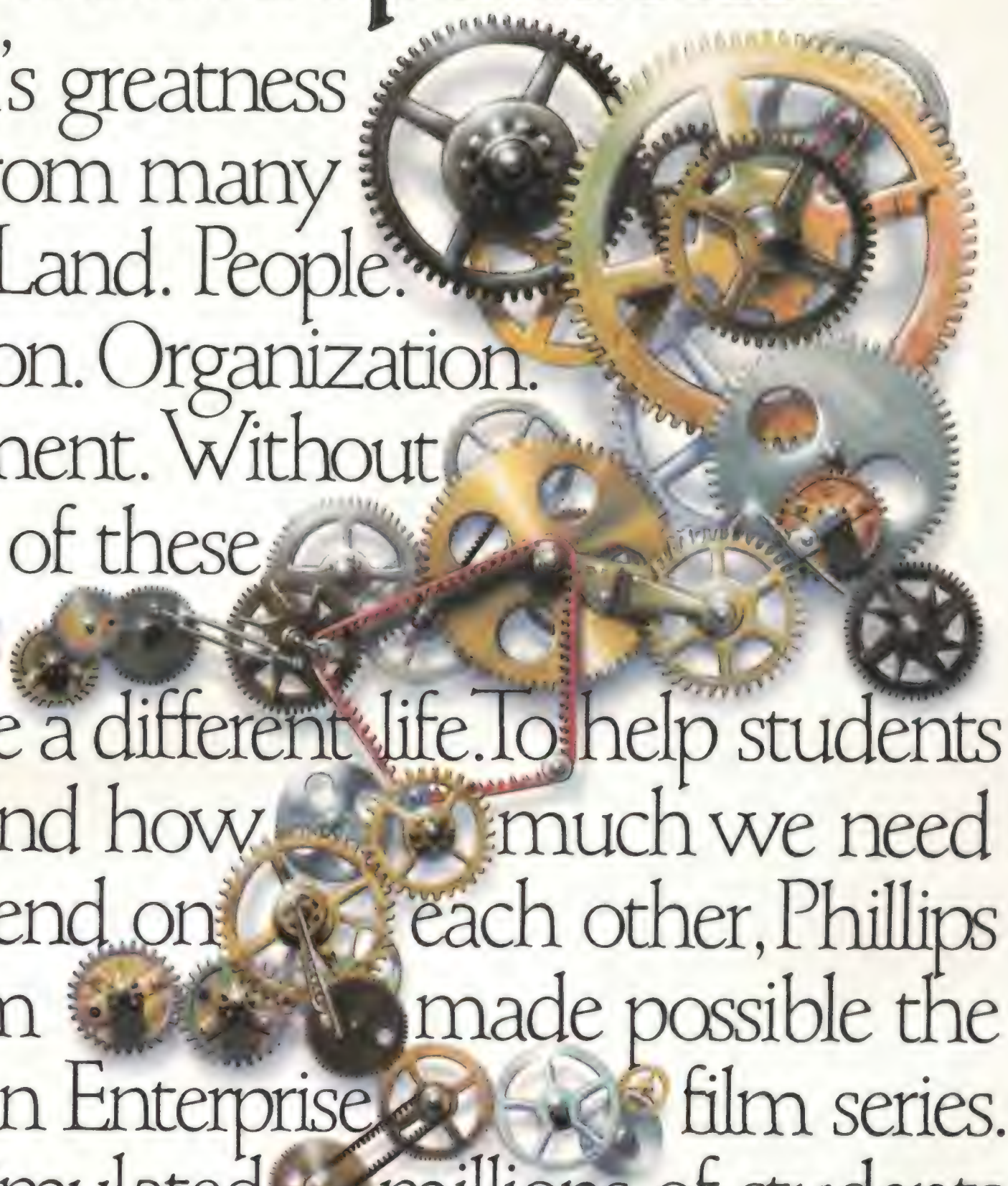
Looking for birds in the silent season is excessively difficult. Ground birds move effortlessly, for the most part. Elusive wrens and babblers may chirp a bit, hopping just out of sight. A leafy twig flickers momentarily, as a bird hops to another perch—perhaps a dark shadow at the most; more often, there is not even a glimpse of a wraithlike bundle of feathers. A flash of color here and there may identify a minivet or a green bulbul, but what of the myriad others, shades of brown or black or dark gray? With the use of bird nets we can sample a fraction of the ground fauna, although here again small predators, owls or rats, may destroy the netted birds after dark.

Our survey of this vast forest for the Indian Department of Environment shows that this area is one of the last unspoiled tracts of evergreen jungle in this country. Our time in the forest is comfortable except for leeches, ticks, nettles and drenching rain. It has been quiet, soundless and unadventurous, aside from one occasion when two of our elephants panicked after scenting a tiger in tall grass, ran down a steep river bank, bumping each other off balance and nearly tripping over a submerged log in five feet of rushing icy-cold river. We clung on, only wet and shaken.

Of one thing we are persuaded. There is a value in this forest's remaining, as silent in the winter and as vibrant with color and noise in the monsoon, as it should be. The evolutionary complexity and interweavings of the rain forest can never on Earth be replicated, even by mankind's ingenuity. We should respect this harmonious web of life, a unique mosaic which defies the imagination and which will never be seen again on this or any other planet.

S. Dillon Ripley

A Declaration of Interdependence.



America's greatness comes from many sources. Land. People. Innovation. Organization. Government. Without any one of these gifts ours would be a different life. To help students understand how much we need and depend on each other, Phillips Petroleum made possible the American Enterprise film series. It has stimulated millions of students to think about our interdependence. For only by the acknowledgment of our interdependence can we free ourselves to enjoy the fruits of independence.

PHILLIPS 66

The Franklin Mint Record Society,
in collaboration with Count Basie, Les Brown, Lionel Hampton, Woody Herman,
Harry James, Sammy Kaye and a panel of distinguished music authorities,
is proud to present . . .

THE GREATEST RECORDINGS OF THE BIG BAND ERA

ARCHIVE COLLECTION

The most comprehensive collection of
original big band recordings ever assembled.
And the first ever issued on superior proof-quality records.

"We wanted this collection to have it all! The great bands, the soloists and the singers. It's good to know this music is all here . . . all together . . . for now and the future."

—Count Basie

The greatest authorities on the music of America's big band era—musicians and music critics alike—have joined together, for the first time, to assemble *the definitive collection of big band recordings.*

This is a collection unlike any issued before. For the bandleaders, writers and critics who comprise this panel are the very same ones who shaped the big band era.

These experts enlisted the cooperation of the record companies which now hold the *original master recordings* of the big name bands. Thus, the panel was able to make its selections from virtually every big band performance ever recorded—*making this the first such collection ever assembled from all the big band record labels.*

As a result, this will be the most complete, comprehensive and authoritative collection ever devoted to big band music. And it will be the first ever available on *proof-quality* records of exceptional fidelity.

All the great bands, singers and soloists in their greatest recorded performances

The Archive Collection of *The Greatest Recordings of the Big Band Era* will be all-encompassing. A collection which reflects the musical diversity of the era. The crisp swing of Benny Goodman and Artie Shaw, the relaxed rhythm of Count Basie and Jimmie Lunceford, the bright dixieland of Bob Crosby, the sophisticated stylings of Duke Ellington, the dreamy delicate sounds of Ray Noble, the soft, sweet music of Guy Lombardo and Sammy Kaye. It will also include:

The musical forerunners of the era—Paul Whiteman, with Bing Crosby and Bix Beiderbecke; Fletcher Henderson, who influenced Benny Goodman and many others; the early sounds of Glen Gray and Fred Waring.

The nostalgic themes of the big bands—Glenn Miller's "Moonlight Serenade" . . . Tommy Dorsey's "I'm Getting Sentimental Over You" . . . Louis Armstrong's "When It's Sleepy Time Down South" . . . Vaughn Monroe's "Racing with the Moon."

The greatest hits of an entire generation—Charlie Barnet's "Cherokee," Duke Ellington's "Take the 'A' Train," Artie Shaw's "Frenesi," Frankie Carle's "Sunrise Serenade," Tommy Dorsey's "Opus One," Eddy Duchin's "Stormy Weather," and Benny Goodman's "Sing, Sing, Sing," with Gene Krupa.

The big band vocalists that audiences loved . . . and still remember. Frank Sinatra with Tommy Dorsey, Peggy Lee with Benny Goodman, Doris Day with Les Brown, Anita O'Day with Gene Krupa, Bob Eberly and Helen O'Connell with Jimmy Dorsey. And many more, including Perry Como, Lena Horne and Ella Fitzgerald.

The ultimate collection of original big band recordings

This is a collection that would be difficult—or impossible—for any individual to assemble. For these selections have been drawn from the archives of all the major record companies . . . and such vintage labels as Brunswick, OKeh, Vocalion, Bluebird and Perfect.

Many of these recordings—like Wayne King's "Melody of Love"—have been *unavailable for years.* Others are *hard to find recordings* of early radio broadcasts . . . such as Frank Sinatra's emotional farewell to the Tommy Dorsey Orchestra, doing his spectacular rendition of "The Song Is You." Still others were only released on 78s—and *never re-issued:* Bob Crosby's "Black Zephyr" and Gus Arnheim's "A Peach of a Pair" with Russ Columbo.

In many cases, the panel considered several *different* versions of the *same* song, before selecting a particular recording for the collection. Thus, *every* selection will be a classic performance. An original recording of the era . . . recaptured on records of superior listening quality.

Superb quality for today's audio systems

These records will be produced to the highest standards possible by The Franklin Mint Record Society—judged by audio experts to produce some of the finest records available today.

Each recording will first undergo a painstaking restoration process—electronically "cleaned" groove-by-groove to eliminate extraneous surface noise and preserve the original brilliance of the music.

The records will be pressed in a dust-free "clean room" using a special vinyl that contains its own anti-static element. This meticulous pressing technique, together with the special record vinyl, results in a more rigid, durable and dust-resistant record. A *proof quality* record that actually *sounds better* than the original—and may be played through any audio system.

Hardbound albums and big band histories provided

In keeping with the importance of this collection, special hardbound albums have been designed to house and protect all one hundred proof-quality records.

Each album holds four long-playing records, with an expertly written commentary—prepared by members of the advisory panel, and illustrated with photographs of the bands. A complete reference index to bandleaders, songs and solo artists will also be provided.

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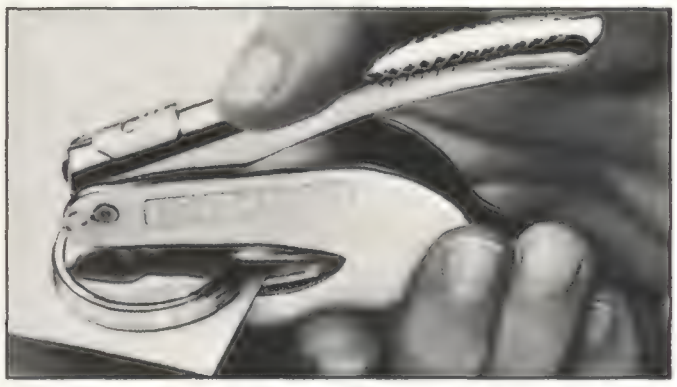

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Letters to the Editor

Franklin Delano Roosevelt

Dear Sir: Read with delight the article about FDR in your January issue. As a youngster growing up in war-torn America, never in my mind or in my parents' thoughts was there a doubt that the United States would be victorious in World War II. Our nation was united, the realities of what we needed to achieve were understood early in those dreadful years. We won because we knew we could, with the kind of leadership our country was blessed by.
Geraldine Field
Delray Beach, Florida

Dear Sir: Joseph Alsop fails to mention that Roosevelt used Japanese-Americans as scapegoats, putting them in relocation centers under the pretext that their loyalty was questionable, although there was no evidence this was so.
David Kahn
New York City

Dear Sir: FDR was the right President and statesman at that time. He also was a man's man and lived life to its fullest. My first sight of him was his walking unaided over a special gangway to board my ship, the 10,000-ton heavy cruiser USS *Tuscaloosa*. General George C. Marshall and Admiral Randall Jacobs accompanied him. We manned the rail in our dress uniforms to honor him.

I recall seeing the first-run movies that were flown in for his evening's entertainment, his refereeing wrestling matches from his wheelchair, chain-smoking four brands of cigarettes which he rotated from the four pockets in his sweater, and

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fishing from the fantail, with a radioman wearing headphones at his side to signal the bridge when a fish was hooked, so as to back the cruiser down to land same. I recall steaming up the Hudson to his estate at Hyde Park, and up a river in Newfoundland where we couldn't turn around and had to back out.

On one cruise FDR, General Marshall, Admiral Jacobs and our ship's captain, (along with the President's own chief boatswain's mate, who took care of his fishing equipment), disembarked by whaleboat to do some deep-sea fishing. As an EM 3/c in charge of cranes on the boat deck, I was in a good position to watch the general and admiral cross arms and carry FDR from the boat deck to the whaleboat. Upon returning from fishing the same procedure took place. The fish were then laid out on deck. The boatswain's mate would produce a book on rare fish and FDR in his wheelchair and General Marshall and Admiral Jacobs would argue like three small boys over the exact species they had caught. Needless to say, I loved every minute of it.

Our last cruise with him was cut short by Hitler's move into Poland, followed by Russia's from the East. His last words to us: "It appears that I may not be sailing with you boys again for some time."
Donald E. Boren
Eugene, Oregon

Dear Sir: Aghast at your timing! A eulogistic article on FDR while Poland suffers? He was the very man who signed away Poland and all of Eastern Europe to "Bloody Joe" Stalin and company.
K. K. Hanley
Fort Worth

Dear Sir: Thanks for the wonderful article on Roosevelt. I loved him as my father. I'm 65 and was in CCC camps. Our family was on relief. We worked WPA. He gave us food, clothing, jobs and *hope*. He truly was a giant, better than any since. When he died, the greatest tree in the United States fell.
Wendell E. Bulger
Chicago

Dear Sir: Alsop errs when he writes: "Mayor Anton Cermak was killed by [FDR's] side. . . ."

Mayor Cermak died 19 days later from the gunshot wound inflicted by Giuseppe Zangara. On the evening of February 15,

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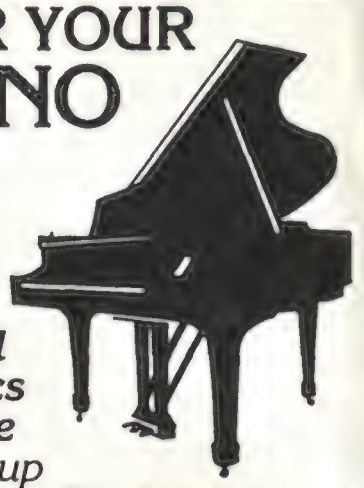

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1933, as Roosevelt finished a short speech, Zangara rose and took aim at the President-elect. The wife of a Miami physician, Mrs. Lillian Cross, realizing immediately what was about to transpire, reached out and grabbed for Zangara's arm. Thomas Armour, a local carpenter, also realized what was happening and he, too, grabbed the gunman's arm. Their quick action saved the life of the President-elect, but they were able only to move the assassin's arm sideways, not upward. Consequently Zangara emptied his revolver into the crowd. Five individuals were wounded, but the recently elected Mayor of Chicago was the only fatality.
Jack Morgan
Vancouver, Washington

Dear Sir: To this 78-year-old, your article recalled those long-ago days when the White House was occupied by a doer with vision, charming personality, courage and a kindly heart toward Americans less fortunate. FDR appealed to most Americans tremendously. He acted to help get our nation out of the devastating Great Depression. He helped save humanity from the merciless savagery of Hitler and Mussolini. His memory is cherished here and abroad. He will go down in not only American history but in world history as one of civilization's greatest leaders.
George Herman
Orange Park, Florida

Dear Sir: The gifted and acutely perceptive Mr. Alsop did us a great service in describing the endearing dowdiness of that wonderful pair. By definition backwoods folks, hillbillies, trailblazers and their descendants are a dowdy lot. And to have had a President who saw us in that light made that grand man seem as close as a brother.
Frances A. Brown
Henryette, Oklahoma

Knights of Malta

Dear Sir: When Napoleon conquered the island of Malta in 1798, he declared, "The Order is dissolved!" Many of the Knights fled to Russia, where they received a warm welcome from Czar Paul I, who was then elected Grand Master. The Grand Priory of Russia flourished until discontinued by Alexander I in 1817.
Earl J. Wilson
Potomac, Maryland

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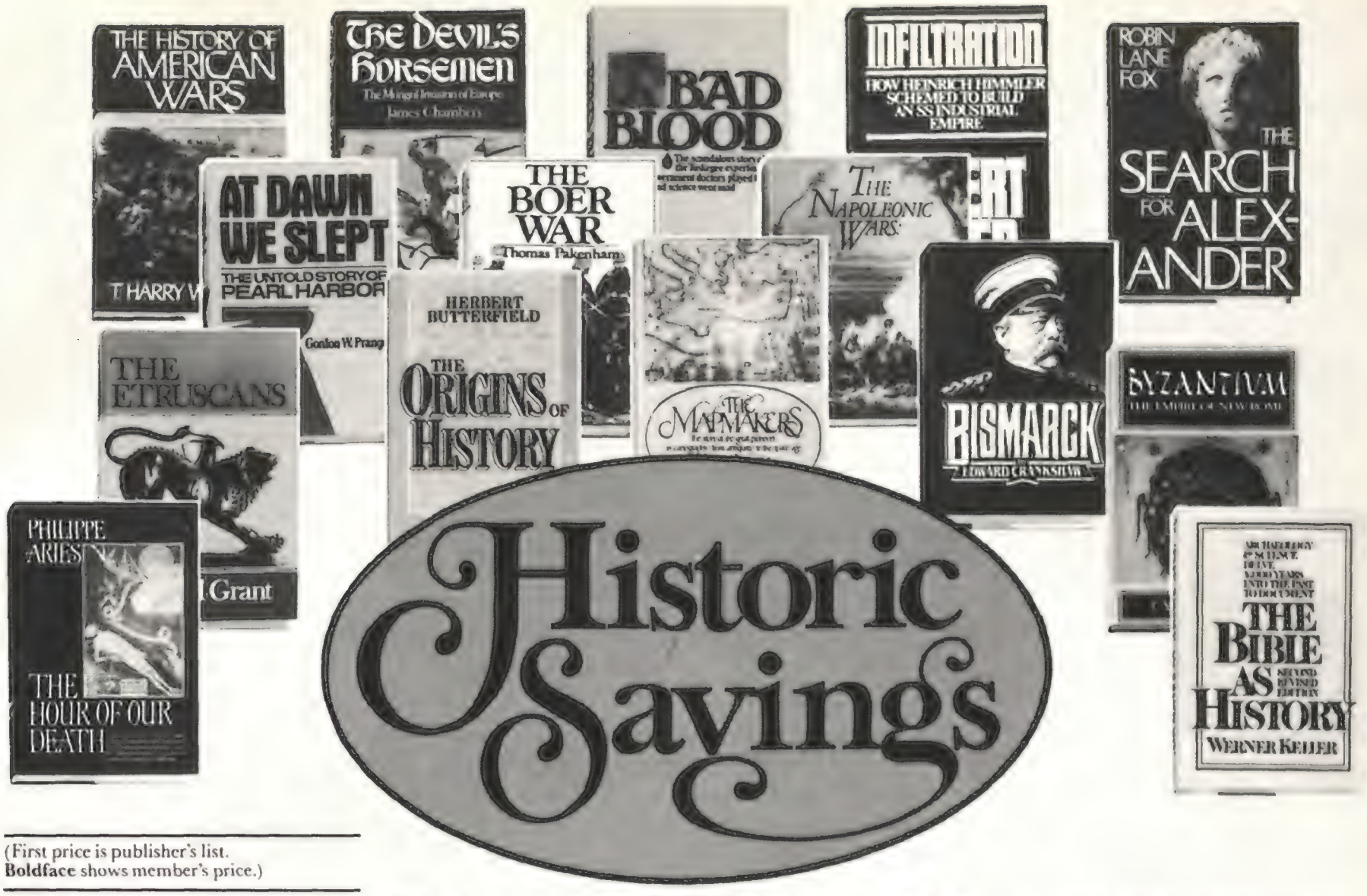

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Creativity

Dear Sir: I thoroughly enjoyed Bill Moyers' scholarly article on creativity, especially his comments on the importance of bringing seemingly unrelated ideas together in a new pattern. The contributions to higher algebra made by the mathematical genius Blaise Pascal, in the 17th century, resulted from bringing the notion of patterns and arrangements, common enough in geometry, to bear upon number itself. In his literary classic, *Pensées*, he writes: "Let no one say that I have said nothing new; the arrangement of the subject is new. When we play tennis, we both play with the same ball; but one of us places it better." No doubt Bill Moyers was aware of this quotation, but he said it differently.
Glenn W. Brier
Arlington, Virginia

Dear Sir: Bill Moyers, in trying to understand creativity, has gone overboard in complicating a basic function of the human system and will probably discourage creativity in a great many who read his article.

The successful manager, editor, salesman, trial attorney, doctor, housewife, athlete, and in fact anyone doing outstanding work in setting new records, is performing in a creative manner. Very simply, being innovative is being creative. True creativity is putting together bits and pieces of past experience into a new form or arrangement which is a better solution to a challenge facing one than previously known, a result of one's internal mental process and the desire to find a better way.
William Newman III
Westport, Connecticut

Dear Sir: Having been associated with creative people for a number of years, my observation is that they are motivated primarily by their hunger for recognition. Visualize a creative person stranded permanently, without hope of rescue, on a deserted island—along with all the tools of his or her art. How many paintings would the artist paint? How many photographs would be taken? How many songs written, sculptures sculpted? Would a writer generate volumes of marvelous prose year after year? No—unless there was the hope these works would someday be seen or heard by human eye or ear.

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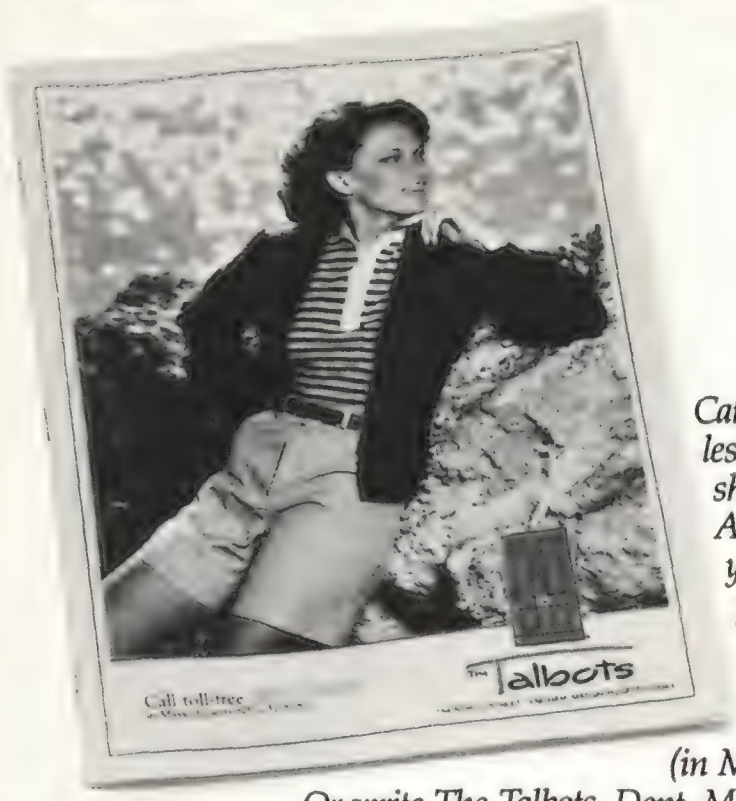

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Robert W. Neelands
Stone Mountain, Georgia

American Impressionists

Dear Sir: Ellen Axson Wilson, first wife of President Woodrow Wilson, was a fine artist who provided the impetus for the family's summers in Old Lyme. In 1908 with Wilson vacationing in England after a year of academic acrimony at Princeton, Ellen and her three daughters were at the Griswold house. She studied with Frank Vincent DuMond. Her talent has been overshadowed by historians understandably preoccupied with her husband.
Frances W. Saunders
Princeton, New Jersey

Maurice Sendak

Dear Sir: Guess what this 60-year-old grandmother's favorite Christmas present was? You've got it—Main Guy. Maurice Sendak, I love you.
Betty Weber
Schenectady, New York

Wind tunnels

Dear Sir: You say "Man's first venture into space was conducted under the evil stewardship of Adolph Hitler. In 1942, the Nazi leader's first V-2 ballistic missile went diving into England. . . ."

The first V-2 struck London on September 8, 1944, and the last one on March 27, 1945. The V-2s were launched after the V-1s, better known as buzz bombs, flying bombs, pilotless planes or doodlebugs. The first one landed in London on June 13, 1944, one week after D-Day. And, of course, neither the V-1 nor the V-2 was manned.
Bissell Alderman
Jaffrey Center, New Hampshire

Phenomena

Dear Sir: Having dabbled a bit in the history of Man, I find our present world to be different in one major respect from all prior civilizations which flourished and died without having had serious impact on the planet.

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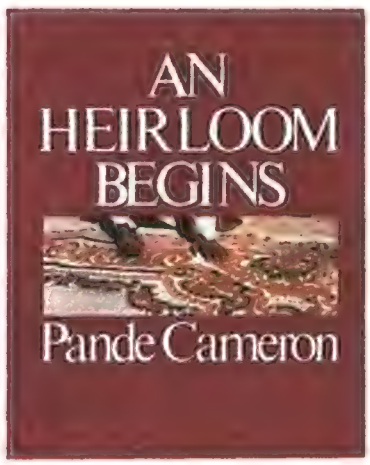

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Charles F. Lumm
South Bend, Indiana

So many books . . .

Dear Sir: You asked "Do architects save blueprints . . .?" I am a retired architect, and in the 21 years I administered 2,000 construction projects for the state of Colorado, plenty were saved. Not blueprints—they're like Xerox copies. But the paper or Mylar original from which the print was made—that is something else. At the completion of a project I gave one set of reproducible drawings to the owner, filed the other with the Division of Archives. One day I walked into one of our buildings and found rotary files being installed on an upper floor, in banks, like soldiers. When loaded, each file would have exceeded the weight of a piano. I shut the work down, got the old drawings and proved that what was good in the 1930s isn't good enough today. In a short time there would have been broken concrete and tragedy on the floor below.

Original drawings are marvels to behold and fun to examine, but they are kept for more than nostalgia. Times change and the needs of buildings change, and it behooves the architect to save as much on paper as he can.
L. E. Klatt
Denver

Dear Sir: Charles Larson asks whether other people save things. You might be interested in knowing why I cannot lie down on my davenport. My problem is plants, which I wish to benefit from the sunshine through the south window. I do get a respite in summer when they are all outside. If only we had a longer growing season in western Montana it would help. I am thinking of getting rid of all my plants. I like to lie down on my davenport once in a while.
Allison Easterling
Missoula, Montana

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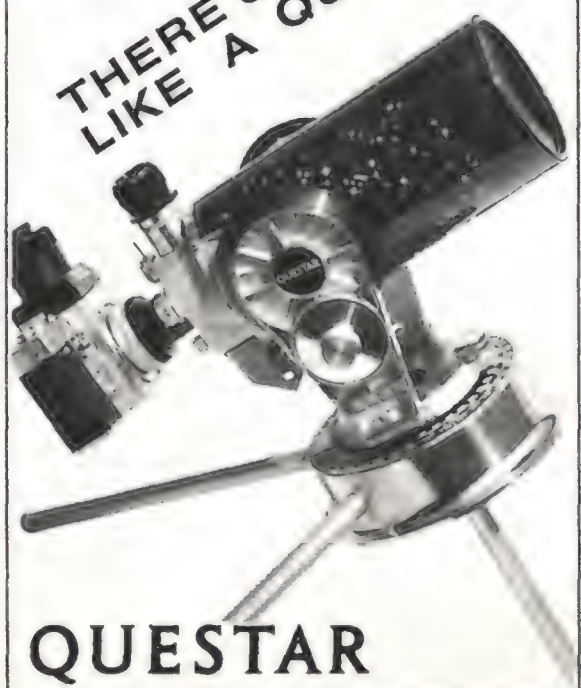

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Around the Mall and beyond

Dr. Richard S. Fiske, director of the Museum of Natural History, decided recently that he had to get to the top of the inner dome of his building—the lofty, round ceiling of that echoing rotunda where the African elephant greets visitors. Why? Because it's *there*, of course.

Fiske is a volcanologist and so climbs mountains as readily as others dodge traffic. To climb the dome he put together a team: Jerome A. Conlon, Fiske's administrative assistant; Kim Nielsen, photographer; myself, expedition historian, preferably nonclimbing. We set off to establish base camp on a bright afternoon when we should have been on the Mall behaving sensibly by throwing Frisbees.

My idea of somehow avoiding the climb soon proved illusory. I was expected to show the right stuff. I told myself that here was my chance to experience another of the Smithsonian's high points, and that, after all, any fool ought to be able to climb a dome, and so I shouldered my pack, lashed on my crampons and set out with rope and ice ax.

An elevator deposited us on the upper display level, where the Hope Diamond resides. Unlocking a door, we faced a large stairway that took us to a higher level where no visitor can go without a Sherpa guide. We circled around the rotunda on this gallery, finding it lined with shelves. We were all, perhaps, a little chilled to find them filled, top to bottom, with drawers packed with human bones. Fiske chose one at random. "Tibiae" said the label, and when we pulled it out, there they were, brown with antiquity.

Fiske fondled one, and I seemed to hear him thoughtfully muttering something

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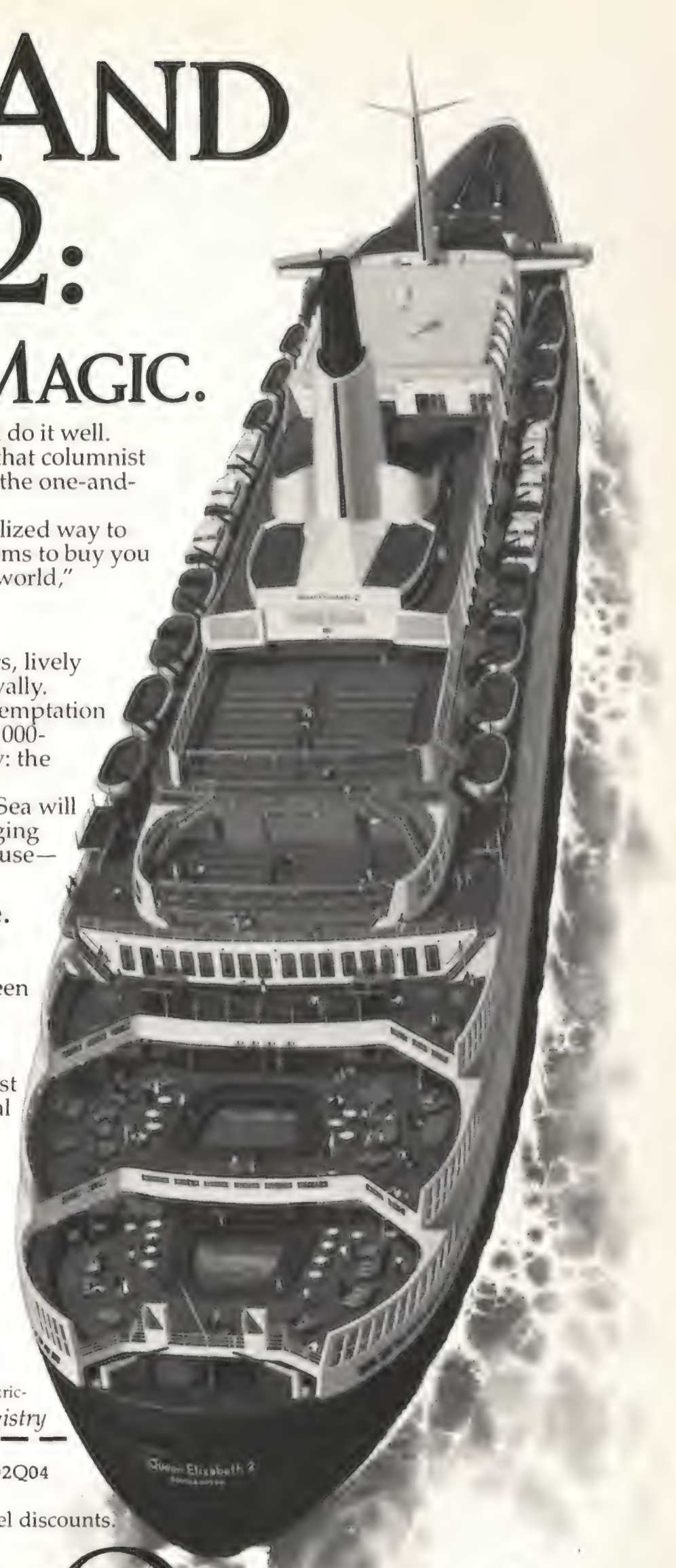

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from Shakespeare. Then he put it back and closed the drawer. "Onward."

We continued our trek around the gallery. Leaving the Place of the Bones, we came at last to a tall door, patined with age. Jerry produced a key and the door swung grudgingly open.

We found ourselves in a lofty, dimly lit room lined with brick. Jerry found a light switch and bare bulbs flickered on. In the light we saw steep metal stairs mounting into the gloom. Roping up, we started our assault on this place, to be known as The Staircase.

Now we climbed in silence for a time. And at last we faced a doorway. Gasping in the thin air, we heaved ourselves through and emerged in a musty chamber, nearly dark except for patches of orange light that seeped out at intervals from a huge central mound of masonry. We eyed each other with wild surmise, suddenly realizing that we were beside the base of the great summit. From here, if the weather held, we would make our dash for the peak.

We followed a circular passage around the base of the almost hemispherical mound. I named it The Catwalk. At last we reached a wooden ladder, seemingly acrumble with age, which rose in sections. Each section was angled to remain tangential to the curve of the mound.

I thought I heard Fiske say, "Men, we have reached The Ladder. Well done. Conlon and Nielsen will now move up on one rope. I shall haul up . . . ah. . . ."

"Park," I suggested.

"Exactly. Park. Mind your footing, now, all of you. And watch the time. We must return to Camp Number Three before dark."

And so we made our play for the top, first hauling ourselves upward with hands as well as feet, finally standing erect and simply trudging up The Ladder, one foot at a time. Up . . . up . . . breath coming in agonized gasps . . . muscles screaming.

And then suddenly there was no place higher to go. We had done it. We had conquered The Inner Dome!

Well, anyway, we got up to the eye of the dome, a spooky place, predominantly lit by the similar eye of the outer dome, perhaps 15 feet above it. An eye is fashioned by keying the masonry of a dome against a ring. Reinforced glass fills the panes, and here a plastic cloth had been spread over the glass, presumably so that if the Washington weather produced a

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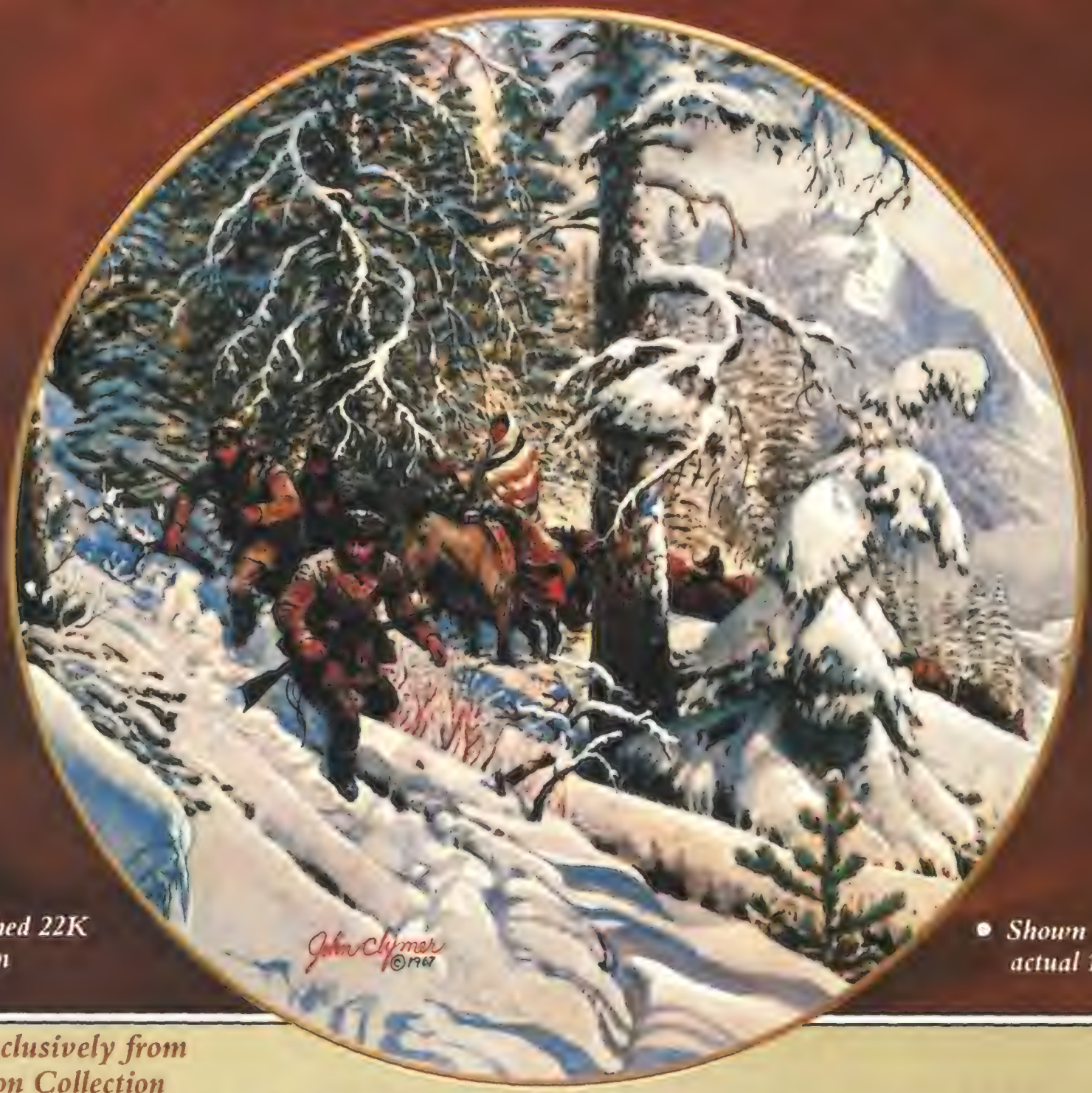

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mighty precipitation, no vagrant leak would end up soaking the elephant, about 100 feet below.

I knew that I must take a look down. I don't know about the others, but I'm very uneasy about heights when I'm still connected to the ground, and I found the view from on high absolutely devastating. The world's largest mounted specimen of an African bush elephant looked like a flea. Almost more disturbing than the height was the sense of fragility.

Looking down at the tiny dots that were people surrounding the elephant, I was almost shocked to find that no one down there seemed to be looking up at the rotunda's distant top with the sudden understanding that it was about to crash down on the floor. No one realized the danger that seemed so imminent to me. I suppose life is full of such situations—someone with an overall view, shuddering at possible catastrophe while hordes of the ignorant trudge about below. But I had never before had that view. I had always been one of the people who stare at today's elephant, not at tomorrow's possibilities.

We scrambled down from the dome a little thoughtfully. It held just fine. Oh well, I suppose that an ant can walk on an eggshell.

The rotunda dome is 71 and a half feet across at its base. The eye is 18 feet ten inches in diameter. These and many other facts came from an architectural description of the Natural History Building which I had read at some point before the ascent. It was published in 1913.

Another similar descriptive booklet is a Smithsonian "Visitor's Guide" of 1884. Among many other things, it mentions some of the notable figures who had, up until 1884, served for a time as Regents of the Institution.

The view from the inner dome

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And it was here that I saw the name "Alex. H. Stephens" and it clicked. Alexander Hamilton Stephens was Vice President of the Confederacy under Jefferson Davis. He was also, paradoxically, a friend of Abraham Lincoln.

Stephens, a Georgian, had sat in the House of Representatives in the 1840s, while Lincoln was a Congressman from Illinois. The two men were part of a group of Whigs called "Young Indians," who wanted—and got—Zachary Taylor for President.

Stephens was a tiny man, sickly, wizened, perhaps 90 pounds soaking wet. But he carried a ton of principles and had the courage of a warrior. Before the Southern states did secede, Stephens came out against the move—but he nonetheless accepted the office of Vice President.

In the winter of 1864-65, Stephens was one of the small group of Confederate leaders who met with Lincoln at Fortress Monroe, at Hampton Roads, Virginia, to make a stab at restoring peace to the shattered country. Here was a strange and rather touching reunion of Stephens and Lincoln, the two old friends and colleagues of those early days in Congress. They disagreed on the issue of peace, but affection still glowed between them.

Carl Sandburg writes that Stephens arrived wrapped in a massive overcoat, a long muffler and many shawls. When he finally shucked them all off, Lincoln strode over to him with a smile. "Never," he said, "have I seen so small a nubbin come out of so much husk."

Later, as they parted, Lincoln asked what he could do for Stephens, personally. Stephens mentioned his nephew, a prisoner of war in the North. Within days the young Rebel officer was free. And within weeks Alex Stephens was defeated and disgraced in the eyes of most Northerners, and Lincoln was dead.

Gradually Stephens reestablished himself as a statesman. He was back in the House of Representatives when he was made a Regent of the Smithsonian in January 1878, serving for 14 months.

Stephens was by no means the only one to be named during those postwar years when some Northern feelings still ran pretty high against full acceptance of the South in Washington.

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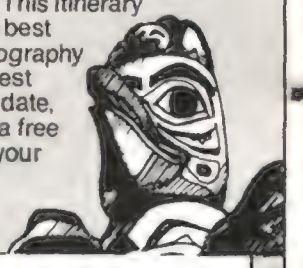

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resentative in Washington, became a Regent. Virginia Senator Robert E. Withers, erstwhile Colonel of the 18th Virginia Infantry, arrived in 1877.

And in the more liberal Eighties, other ex-Rebels came to the Smithsonian. Mississippi Representative Otho Robards Singleton, who had served in the Congress of the CSA, became a Regent in 1884. So did Representative William Lyne Wilson of West Virginia, a former trooper in the 12th Virginia Cavalry. There was also Senator Samuel B. Maxey of Texas, who had been a general.

Other Confederate generals who found themselves on the Institution's board included "Fighting Joe" Wheeler of Alabama, who had vigorously shaken the teeth of the Union a few years before, and Joseph E. Johnston of Virginia, who finally surrendered to Sherman 17 days after Appomattox. They were Regents in the 1880s and 1890s. By then this brutal American war was a generation away, and memories of it were dimming. And the Smithsonian had maintained a tradition of political dispassion in the sectional fires of the conflict's aftermath.

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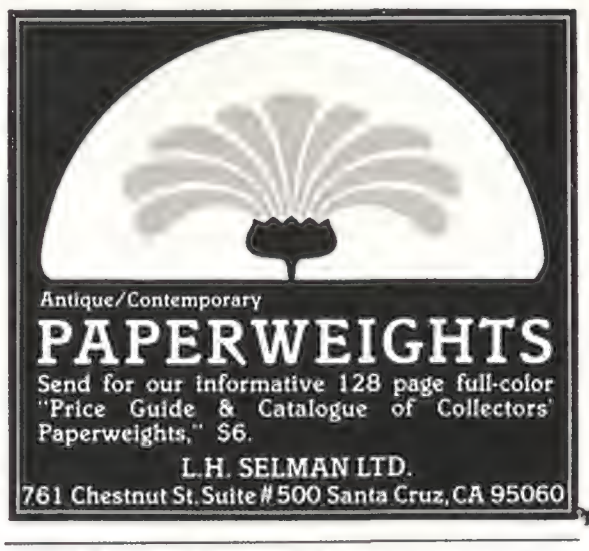
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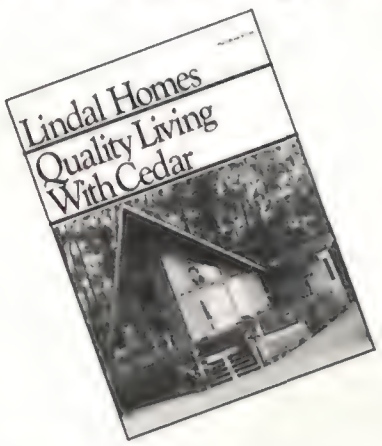

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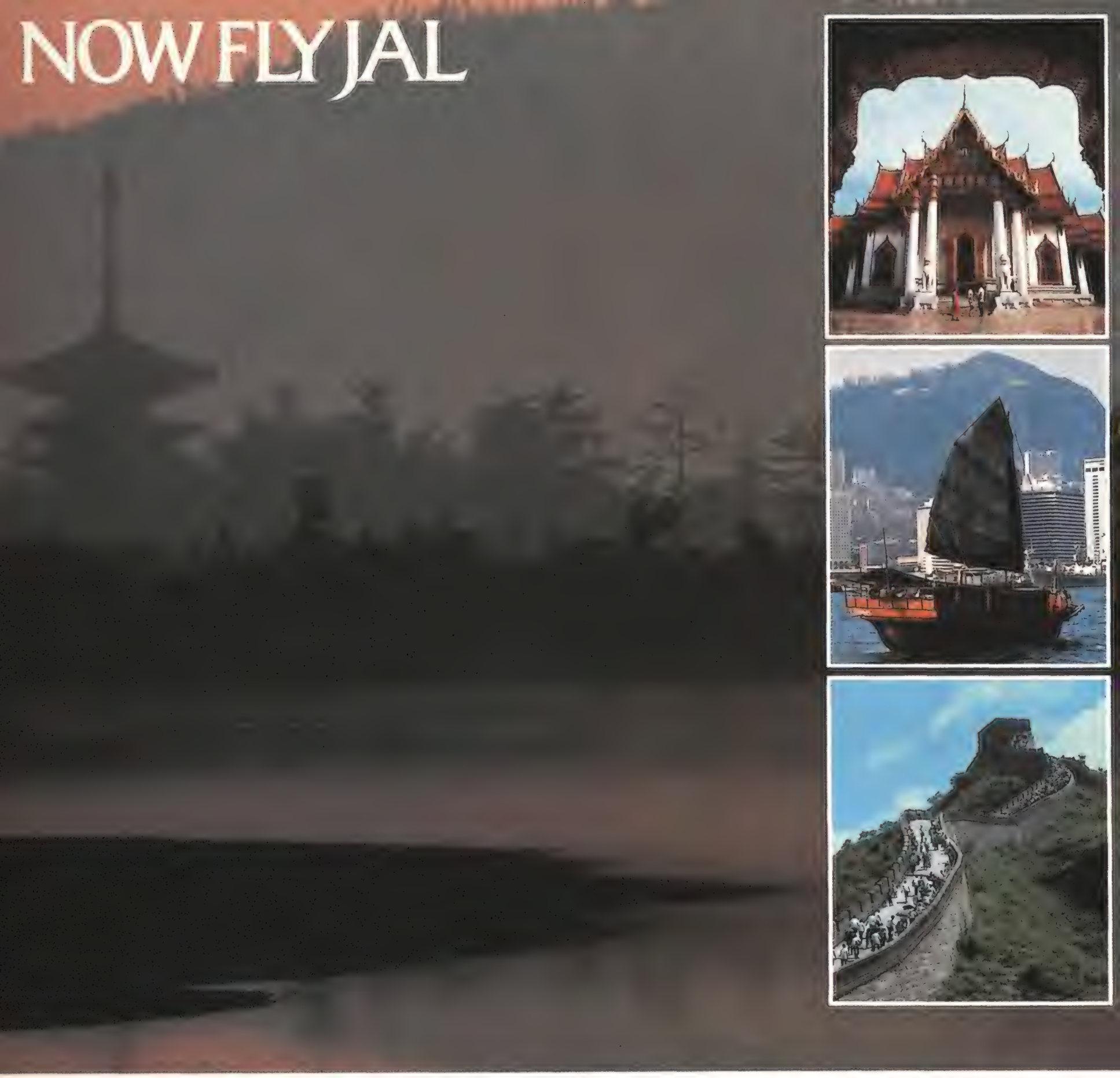
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Phenomena, comment and notes

This year we decide whether to keep the law protecting endangered species; some argue that we are one of them

Something of a by-election on the future of the biosphere is taking place in the United States this year. The Endangered Species Act expires at the end of September, and the struggle over extending it is heating up. The outcome will tell us something about which way we are going, and about our understanding of the world around us.

The Act provides the legal basis for saving plants and animals that are now, or may foreseeably become, in danger of extinction. It provides a process for listing them as endangered or threatened, government controls over the harvest of and trade in listed species, the authorization to acquire critical habitat, and it gives citizens the standing to file suits against violators.

The law assumes that the extinction of a species—any species—is undesirable. That's a proposition most people can agree on. The trouble comes when there is a choice between saving a species, often laughably obscure, and pushing ahead with a project that will mean jobs and profits for people. The answers are never simple. On a trip to East Africa, I started out wildly excited about seeing the wildlife and ended so appalled at the families sleeping in the streets of Nairobi that I was ready to plow up the game parks for farms or pave them over for factories.

In a longer view, however, every extinction of a species endangers us, too; decisions we make today have an irreversible

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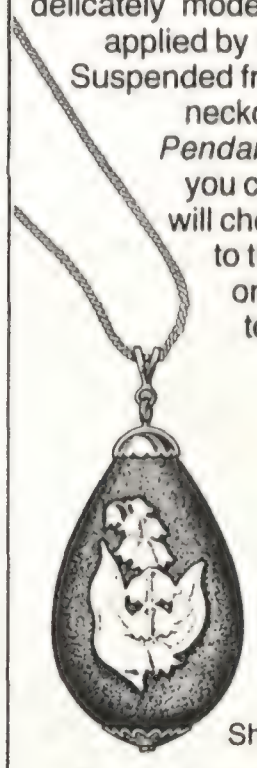

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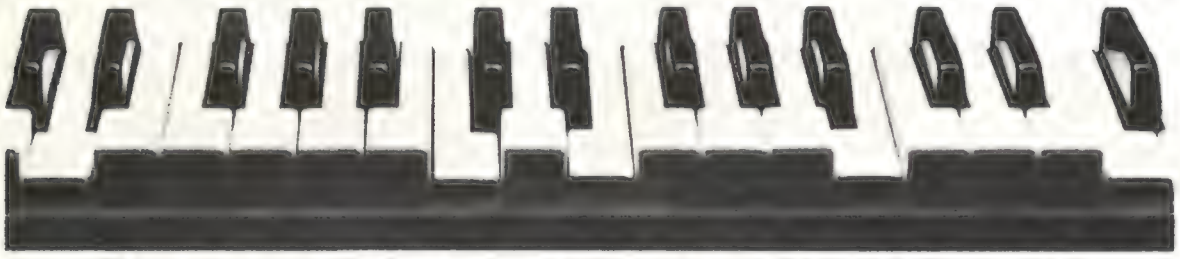
effect on our own future. For all our high-powered technology, we remain part of the web of life and cannot live without the rest. In the simplest terms, we must have producers, the green plants that convert raw materials into food, and the decomposers to recycle our waste. If either stops, the whole ecosystem stops. In actual practice, of course, we need a lot more than these two sine qua nons.

Species have always gone extinct. Perhaps 90 percent of all the species that ever lived are extinct. But until the very recent past, a species gone extinct was usually replaced. That no longer happens. As Stanford biologist Paul R. Ehrlich says, "We have opened the drain wide, turned off the faucet, and the bowl is rapidly emptying."

The arguments for saving species were aired in January at the annual meeting of the American Association for the Advancement of Science (AAAS) in Washington, D.C. At a Monday morning panel on endangered plants, Ehrlich offered a breakdown of "services" the ecosystem provides for us, basic functions we would be hard pressed to duplicate. The composition of the atmosphere, for example, is maintained by living things. Oxygen, which composes about 21 percent, is produced by green plants. A little less, and we would be in trouble. A little more, interestingly enough, and we would also



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be in trouble. Ehrlich estimates that in an atmosphere of 25 percent oxygen, fires would burn uncontrollably.

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Ecosystems have a lot to do with freshwater supplies. Forests absorb water, releasing it slowly. In the process they remove acids, heavy metals and even radioactive isotopes. They also filter (and in summer cool) the air.

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More familiar arguments are those about direct benefits we can expect from species we have never heard of. At a World Wildlife Fund briefing tied to the AAAS meeting, Cornell biologist Thomas Eisner pointed out that some 40 percent of the prescription drugs in the United States contain, as their chief ingredients, compounds derived from plants. And yet we have screened only a small percentage of the 250,000 species of flowering plants for medical potential. One we do know about is the evening primrose. It is the only rich, natural source, except human milk, of gamma-lineolenic acid (GLA), the precursor of hormones that seem to help prevent arterial disease, arthritis and eczema. Our bodies can make GLA, but alcohol and certain fats in the Western diet inhibit formation of the necessary enzyme. Meanwhile, some species of evening primrose are in danger of extinction, as are 20,000 other plant species around the world (SMITHSONIAN, November 1978). Invertebrates, the sorts of creatures it is hard to raise money for, also hold rich promise. Eisner said that in the last few years the half-dozen people working in his laboratory have isolated potential heart drugs from fireflies, a cockroach repellent from a millipede, a nerve drug from another millipede, and shark repellents from a marine mollusk.

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the world's cropland is planted with just three grasses: wheat, rice and corn. The entire list of major crops adds up to fewer than 20. (This number may seem even smaller if the world's climate becomes more erratic in the future, as some scientists expect.) Even if we ignore the possibilities of turning to new plants for food, animal feed, rubber, lubricating oil, chemical feed stocks and liquid fuels, we still stand to lose opportunities to improve what we have. Consider *Zea diploperennis*, a species of wild corn recently discovered in Mexico that can be crossbred with domestic corn (SMITHSONIAN, December 1979). *Z. diploperennis* is virus resistant, it grows in wet soils, but best of all it is perennial—it does not have to be planted every year. Anthony C. Fisher, an economist at the University of California at Berkeley, estimated at the AAAS meeting that *Z. diploperennis* could be worth $4 billion a year to U.S. farmers alone in reduced production costs. And yet, as the Council on Environmental Quality pointed out a year ago, this unprepossessing plant could easily have disappeared. Only a few thousand exist, in an isolated mountain range now being developed. One bulldozer could have destroyed them all in an hour.

In the 1981 book *Extinction*, which Paul Ehrlich coauthored with his wife Anne, the extinction of species is compared to rivets being taken out of an airplane. We can take out a lot before the plane falls apart, but we have no way of knowing which rivet will be the one too many. In the real world, the rivets are popping faster and faster (SMITHSONIAN, July 1976). Some scientists estimate that a million species, most of them in tropical forests, will become extinct by the year 2000. Plotted on a graph, it is a steeply rising curve. Right now, they say, we are losing perhaps one a day. By 1990, the rate will have jumped to one per hour. We are, after all, cutting down the tropical forests at a rate estimated at 25 to 100 acres a minute.

Book burning may be a better simile for species extinction. Every species is a volume in the Earth's genetic library, and we are just now learning to use it. Testifying before a Senate subcommittee in December, Eisner took the analogy further, to the level of individual pages in those volumes. With genetic engineering rapidly becoming reality, he argued, each

species can be viewed as a repository of genes that are potentially transferable. Each is a loose-leaf book from which we can take individual pages as we need them.

Speaking on biological diversity last November, James L. Buckley, the under secretary for security assistance, science and technology at the State Department, put it another way: "By permitting high rates of extinction to continue, we are limiting the potential growth of biological knowledge. In essence, the process is tantamount to book burning; but it is even worse, in that it involves books yet to be deciphered and read."

Ehrlich advocates three approaches to slow the extinction rate: preserve as many undisturbed areas as possible, keep outside toxicants from polluting that land, and make the land already developed for human use as hospitable to wildlife as possible. He is also adamant that the Endangered Species Act must be extended. "This is one the biologists simply have to come out of the woodwork on," he told reporters.

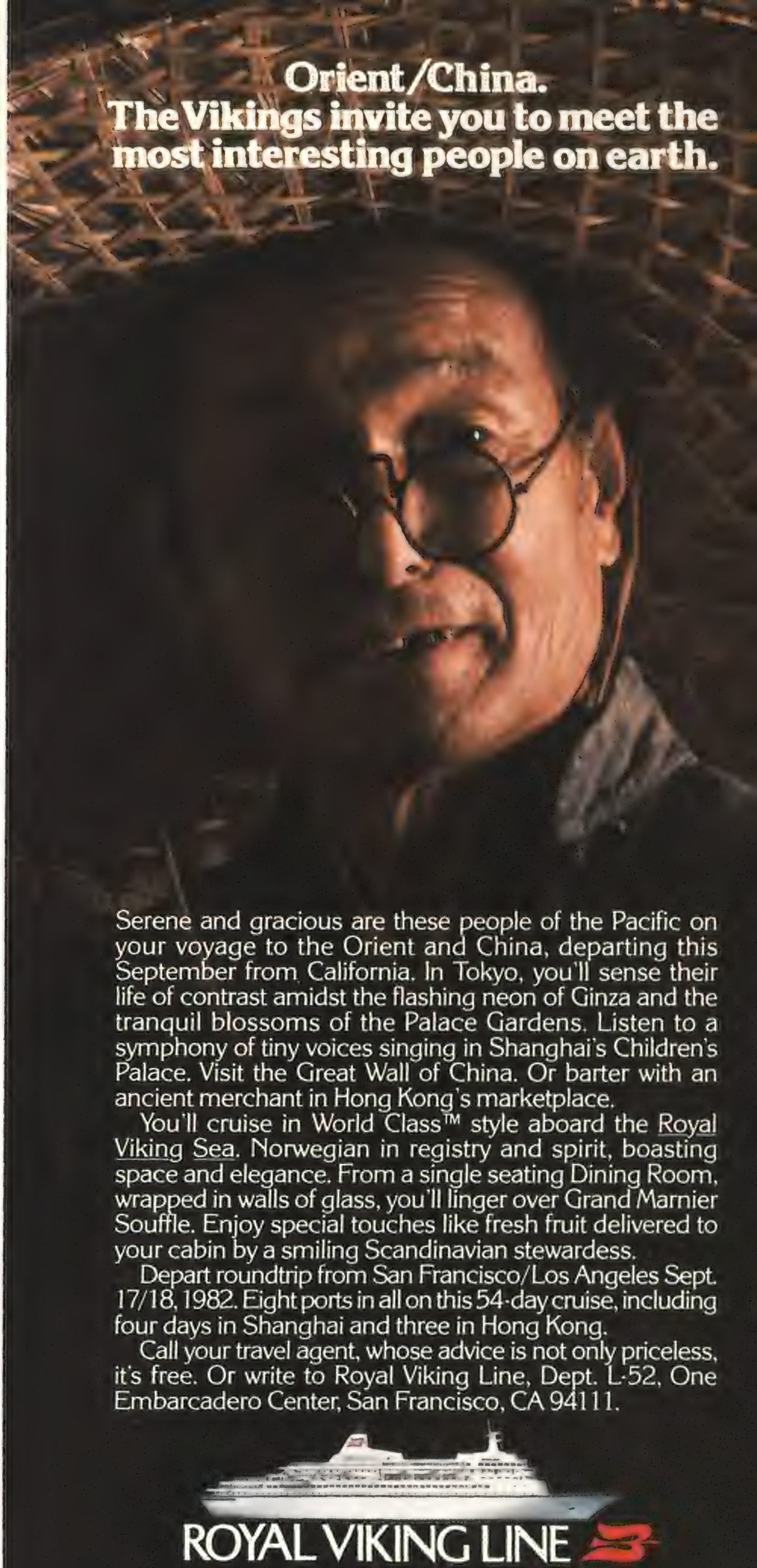
For Eisner the question is algebraic: "Is the rate at which we can educate as high as the extinction rate?"

Some scientists are going to try. An ad hoc group with the straightforward title of Scientists for the Endangered Species Act is forming to arouse public opinion, mainly through "message" advertising and public speaking. Then there is the Endangered Species Act Reauthorization Coordinating Committee, a coalition of 25 of the major conservation groups working to have the law extended (P.O. Box 50771, Washington, D.C. 20004).

I find myself thinking in terms of adding a small check for the Nature Conservancy to the monthly bill-paying spree, and letting the backyard revert to what in my neighborhood passes for wild. I've already mowed down two box turtles, a nest with eight white eggs and a southeastern scarlet snake: enough is enough. Perhaps a bird that stops there for a moment in spring or fall will be just the bird that plays a keystone role in an ecosystem hundreds of miles away.

The impact of my little gestures will never be measured. But by September 30 we will have some indication of how the country feels in 1982 about species going extinct. The proverbial glass will be a little fuller or a little emptier.

John P. Wiley jr.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By Alan Linn

Once again Athens' Acropolis finds itself in terrible trouble

This time Greece's sacred hill, often rent by explosions and hurt by bad rebuilding, is threatened by pollution—and people

James Russell Lowell, on a visit to Athens in 1878, wrote to a friend that the Parthenon, heart of the Acropolis, "is the very abomination of desolation, and yet there is nothing that is not noble in its decay." Those also had been the sentiments of Mark Twain, who a decade earlier, on a full-moon summer night, had bribed his way into the hallowed precincts of the Acropolis with three other "innocents abroad." (Even then, the area was locked and guarded at night.)

One wonders what Lowell would write at the sight of the Parthenon today: roofless as usual but now gaping toward a sky leaden with pollution, its austere steps and beckoning interior fenced off by long loops of thick rope dangling dispiritedly from temporary supports, all patrolled by guards with warning whistles. It is difficult to get close enough even to see the still-remaining frieze on the western wall of the cella, protected from the elements by a temporary roof.

Even sadder is the Erechtheum across the way, covered with tubular scaffolding, the worn and stained caryatids (pillars shaped like maidens) carried away to rest in a nearby museum and their miserable sand-colored replicas looking as if they were trying somehow to stand on tiptoe to peer over the blocking bars of metal to see what is going on.

What is going on is a great deal of painfully slow, laborious restoration, decades overdue. The prognosis is guardedly hopeful, but the interim is bleak indeed.

In antiquity when Athens was in its glory, the hand-sculpted Acropolis may have looked like this.

Ruins of Acropolis glow in the late afternoon sun. The Parthenon stands, roofless, at upper right.

"I last saw the Acropolis in 1975 and I don't want to go back," says an American who has been resident in Athens off and on for 25 years. "I prefer to remember it the way it was."

But who's to say "the way it was"? For thousands of years the Acropolis has undergone razings and rebuildings, earthquakes and explosions, has been shattered and reconstituted so often that it is a wonder anything is left of it.

"It's worse than Venice," said a Japanese tourist, holding a handkerchief to her nose and mouth. "Nobody told us. . . ."

The villains are depressingly the same as those in Rome, in Venice, in half a dozen ancient cities: age, neglect, inept "restoration" years ago, industrial pollution. But where Venice has tides, Athens has automobiles, a million and a half of them, belching out exhaust fumes. And where Venice has a shrinking population, Athens has an exploding one: since World War II so many hundreds of thousands of villagers

Used as a Turkish powder magazine, Parthenon is split asunder by a Venetian shell in 1687.

In 1944, World War II British paratroopers occupied the Acropolis and set up camp there.

have migrated to the capital hunting work that Athens now houses 30 percent of all the 9.7 million Greeks, and its environs more than 75 percent of the nation's industry. Steel mills, gas-processing plants and refineries ring the city. The once-peaceful sanctuary of Eleusis, one of the most sacred religious sites of ancient Greece, is now buried in smoking industrial plants, and all the distance between Athens and the port of Piraeus is lined—jammed—with factories producing everything from plastics to furniture.

Much of the year, but especially in summer, a heavy yellowish-gray haze hangs over the city and collects thickly around the rocky outcrop which is the Acropolis, making it almost invisible from such famous vantage points as Mt. Lycabettus and the hill of Philopappos. Natives and tourists alike complain of pollution-induced sinus headaches, smarting eyes.

"People have started feeling ill," says Helen Vlachos, a prominent and outspoken Athenian publisher. "To stop smoking is nothing. In Athens you have to stop breathing." Film star Melina Mercouri, the new minister of culture, hasn't stopped breathing but it is a good question how much new life she can breathe into the restoration.

By 1975 an alarmed Greek parliament recognized the state of affairs and appropriated about $1.6 million to make studies on damage and pollution control. And in 1977 UNESCO's director-general, Amadou-Mahtar M'Bow, offered his organization's help, saying of the Acropolis itself, "The dilapidation has reached such proportions that the temples, sculptures and foundations can no longer be preserved unless vast conservation work is put in hand without a delay."

In 1977 the Greek government prohibited the burning of sulfur-rich fuel in the central-heating systems of apartments around the Acropolis, urged industry to control its effluent, and banned jet aircraft from flying over the city. Automobiles, especially diesels, were cautioned to install pollution control, and occasionally the police halt cars in the vicinity of the Acropolis and poke an instrument that looks like a Geiger counter up the exhaust pipes. Nobody I met in Athens knew of anyone who had been fined for excessive exhaust, however, and industrialists have been notably reluctant to conform to pollution-control edicts. "We have not pushed too hard for antipollution measures of small industry," said an official of the Ministry of Industry and Energy.

However, this has been an unusually warm winter, with no wind and little rainfall, and so the smog has hung heavy over the city. Consequently the government in recent months has taken strong measures against both industrial and automotive pollution.

Sharp earthquakes (as much as 6.7 on the Richter scale) in February and March of 1981 rattled the Acropolis structures even more, moving column drums on the Parthenon a few millimeters and cracking a cornice. "The Parthenon would have suffered much less," says George Dontas, general inspector of antiquities and former director of antiquities for the Acropolis, "had it not been for the iron used in the earlier restoration."

The iron was put in during the closing years of the last century and early decades of this one, as a reinforcement effort. (The original builders either cut and fitted their marble so meticulously that it needed no

Exuding pollution from auto exhausts, downtown Athens traffic sends its fumes toward Parthenon (top). The emissions help eat away the ancient marble, until it becomes plaster, then dust.

support, or used lead sheaths around their iron bolts and clamps to prevent rusting.) The new iron rusted, expanded and cracked the marble it was supposed to sustain. Then water leaked into the cracks, froze in winter, expanded again and widened the cracks.

By late 1981 the Erechtheum, considered the worst case, had been completely and laboriously dismantled and the offending iron removed. It will be replaced by titanium, an alloy with the same density and weight as aluminum but a tensile strength like that of iron or steel. It is difficult to solder, but workmen can do it in an argon atmosphere with electrodes of titanium. They can drill tiny holes in broken marble, insert titanium rods, fix them with high-grade cement and then polish the surface so the repairs do not show.

Early efforts to procure titanium, a metal much in demand for spacecraft among other things, were so frustrating that the normally ebullient Dontas admitted he was "very depressed." Now supplies have been found in Japan, and Dontas has enough.

Marble blocks from which large chunks have fallen are being mended with new pieces of Pentelic marble, carefully shaped from plaster forms to make an exact mend, and glued on with a special fine Portland cement that is highly satisfactory and will last, experimenters say, a century and a half. So precise are the mends that each new piece is being incised with the year—1980, 1981, 1982—so that as the marble ages and the colors blend, future restorers will be able to tell this century's blocks from those of 2,000 years ago.

When the Erechtheum is finally put back together with mends and titanium rods (the original caryatids will never go back, but eventually will be surrounded in the museum by a special case fed with nitrogen to protect them from all atmospheric threats), in one to three years, serious work will start on the Parthenon itself. The remaining frieze will be cleaned but not removed, and the temporary ceiling may be replaced by a marble one like the original.

"The marble ceiling has been prepared for many years—20, maybe 25," says George Dontas, "but when it was made they were afraid its addition would actually knock the building down. Now we have better means of calculating stress, we have made drawings and calculations, and we hope to put it back up after all the necessary repairs are made."

Plans have been to protect the frieze further with a glass case, but that is far away and may, in the end,

The Erechtheum by moonlight, with its famous Porch of the Maidens at left, before restoration began.

prove unnecessary. To avoid covering the entire gigantic Parthenon with scaffolding, Greek authorities have asked for bids on construction of a huge crane strong enough to hoist the ten-ton blocks of sections of the building, and have plans for a sort of funicular railway to ascend the 260-foot rock to bring materials to the crane. The crane will pluck up the blocks, lower them for repair, then hoist them back up.

No precise date for starting all this has been set, but Dontas, who has worked tirelessly to save and protect this national treasure, rather optimistically predicts that the work will be finished by 1991. He professes to be untroubled by money problems: "The government has provided enough money, and it has been taken out of the hands of state channels and ministries," he says. "The sum was given to the Archaeological Society, a private institution, and is in a bank account from which we can draw funds within hours. There is enough there for immediate needs, we are still far from using it all, and we are getting an increase."

Meanwhile work is going on at shoring up the rocky shoulders of the Acropolis hill itself, some of which was crumbling and threatening to fall on the heads of Athenians walking below. The northeast and southeast corners are covered with scaffolding and supports. Workmen circle huge areas with metallic nets, clean away roots and earth behind loosened stones, then cement them back in and sink rods of unoxidizable metal to help hold them in place. Geological surveys indicate that the core of the rock is stable, and if its crumbling edges are consolidated it should support its precious burden for a couple more millennia.

All of this does not solve the thornier, more stubborn problem of all those pesky perils of the 20th century—pollution, transport, the crush of too many people. A search for a chemical paint that would preserve the marble without altering it failed. Far-out ideas like surrounding the whole Acropolis in some sort of preservative bubble have been abandoned.

Perhaps the only people who properly protected the Acropolis were the prehistoric Athenians. They saw the hill simply as a crackerjack natural fortress. From its heights they could see an approaching enemy miles away. Greeks began living atop the rock as early as 5000 B.C., and from there the Athenians withstood the invading Dorians about 1200 B.C.

Some three or four centuries after that invasion, the city's residents began to change the citadel by building a temple on it. As other temples were erected, more citizens had to move their dwellings down the slope to the site of the present-day city. By the sixth century B.C. the gods had won. The last dwellings were pulled down and new laws permitted only temples.

Apparently, someone up there didn't like the compliment. No sooner had the switch been made from hideout to holy place than the Persian hordes under Xerxes swept over the Acropolis. They put the temples to the torch and Athenians hiding within to the

Alan Linn, a free-lance photographer and writer, specializes in travel and natural history. He lived six months in Athens, near the Acropolis.

sword. The Persians ultimately went down to defeat off Salamis, but for the next generation the Acropolis was little more than a heap of ashes and a quarry. As historians are delighted to explain, it was from these ashes that the immortal classical Acropolis rose like the Phoenix. It is the story of this Acropolis that is drummed into the heads of schoolchildren.

The statesman Pericles always gets to be the hero; Greece's glorious fifth century B.C., the Golden Age, is also called the Periclean Age. He succeeded in building an Acropolis he promised Athenians would "give them eternal honor," but he had more than a little help from his friends—Phidias, the chief sculptor and "artistic director" of Project Acropolis, architects Ictinus, Callicrates and Mnesicles, the gold of Athens' allies and, most important, the people of Athens.

Almost every Athenian craftsman turned out to work. Plutarch listed "smiths and carpenters, moulders, founders and braziers, stone-cutters, dyers, goldsmiths, ivory-workers, painters, embroiderers, turners . . . merchants and mariners and ship-masters . . . cartwrights, cattle-breeders, waggoners, ropemakers, flax-workers, shoemakers . . . roadmakers, miners."

Plutarch left out the person who usually gets left out when civic praises are passed around—the taxpayer. In terms of the value of a modern dollar, the Parthenon alone set back the Athenians—but especially their allies, who contributed a whopping tribute—a bare minimum of $150 million. Still, the real wonder is the speed with which it was constructed—a mere 15 years. All in all, the Acropolis is indeed a monument to an Athenian age.

Ironically, criticism of Pericles grew faster than his "imperishable monuments." He was attacked through

An original caryatid (left), now in Acropolis museum, and a still-unfinished cement replica.

Removed in 1803 by Lord Elgin, this caryatid stands, relatively unblemished, in the British Museum.

The Acropolis, again under attack

his mistress, Aspasia, who was accused of running a sporting house for intellectuals (she was a brilliant woman and may even have written the general's speeches). Pericles' impassioned plea, which some said moved him to tears, won her acquittal.

The courts were less lenient when Pericles and Phidias were accused of impiety. The sculptor had put Pericles' helmeted likeness and his own bald head in a scene on the shield of his statue of Athena. Phidias was thrown into prison, where he is said to have died.

Pericles himself died of plague in 429 B.C. Although accused of embezzling gold, he was cleared before his death. And he lived to see the Parthenon completed. It generally is judged the purest, most honest, unadulterated example of human architecture—"the shining citadel of the ideal," a modern guidebook promises. Yet it is all a carefully planned illusion. The temple's lines are neither straight, plumb nor symmetrical. The columns are slightly pregnant, their spacing is uneven, the corner ones are fatter than their fellows, they lean a little, the width of their fluting varies and the beams they hold and the floor they stand on bulge slightly. But these deviations are in fact subtle refinements. In short, the Parthenon looks exactly right because it was created slightly wrong.

Tourists throng the well-worn steps of the Propylaea, imposing entrance to the Acropolis.

Once they were varicolored Maidens

The name doesn't exactly fit, either. It is called the Parthenon because it was dedicated to the virgin goddess, Athena Parthenos. However, the actual Parthenon, the Virgin's Chamber, occupied only a small part of the building.

The Erechtheum, the small Ionic temple at the north edge of the Acropolis, contains the famous Porch of the Maidens, six stalwart ladies (the caryatids) supporting a porch roof on their heads. This most admired porch in the world was built above the legendary burial place of an early Athenian king, and provides balance for the porch on the opposite side. Now, its Maidens have been replaced by copies.

All the Acropolis monuments are renowned for their pale golden luminosity, but this was not intentional. Architectural details were daubed with rich primary colors—red and blue, with some green, mixed with wax, and a little gold leaf. Statues often were ornamented with gold, and flesh-colored makeup was applied to faces from which flashed eyes of ivory and jewels. It has taken hundreds of rainy winters and sun-baked summers to rid the Acropolis of its colors. The slightly golden tone of some of the marbles we see today is an accidental result of iron oxide in the marble. Today, rains combine with air pollutants to form weak sulfuric acid, which turns the marble to plaster and then to dust at an alarming rate.

One of the most widely held misconceptions about the Acropolis is the idea that, to quote a representative scholarly opinion, it has survived "in its virgin splendor." In fact, the Acropolis has been raped repeatedly since puberty.

Alexander the Great, in 334 B.C., sent 300 suits of captured Persian armor to Athens; early scars are believed to have held pegs for golden Persian shields. Demetrius I installed his courtesans in, of all places, the Chamber of Virgins. To honor Rome's Caesars Athenians built a small round temple to the goddess Roma east of the Parthenon, installed a marble stairway leading to the Propylaea and scooped out a theater in the sacred rock's southern face.

The Acropolis fared even worse at the hands of the

Christians, who attempted to outlaw pagan worship. In the time of the Byzantine Emperor Theodosius II various sculptures and pieces of architecture from the Acropolis were carried away. Athena's Parthenon was made a Christian church, and later rededicated to another virgin, Mary.

Frankish dukes of the Fourth Crusade in 1204 adorned the Parthenon with a campanile. The Acropolis walls were crenelated and an ugly 90-foot "tower of the Franks" sprouted from the Propylaea. In the late 1400s conquering Turkish pashas made the Parthenon a domed mosque with a minaret and stocked the Erechtheum with plump harem beauties.

Then in the mid-1600s a bolt of lightning struck gunpowder the Turks had hoarded in the Propylaea. The explosion ripped through the upper portion of the structure and sent the holy rocks thundering down the Acropolis cliffs. The Turkish officers profited little from the experience. A few years later, under the fire of the Venetians, they stored their powder within the Parthenon.

A multinational bull's-eye

About 7 o'clock on the evening of September 26, 1687, German mercenaries manning Venetian mortars lobbed a bomb directly into the Turkish magazine. A Hanoverian officer who witnessed the bull's-eye recalled, "It ignited the powder and the munitions which were stored there. Everything started burning. A powerful explosion wholly ruined the beautiful building." The fire raged for two days. When it was out the visitors saw that the middle of the Parthenon was gone. The walls and 28 columns had collapsed, bringing down three-fourths of Phidias' frieze.

The defeated Turks eventually returned, set fire to the city and recaptured the citadel. For centuries, under the jealous rule of the Ottoman sultans, Athens disappeared from the eyes of Europe, and a makeshift mosque complete with minaret replaced the ruined one with the Parthenon; Pericles' sacred stones were used in reinforcing the Turkish bastion.

Toward the end of the 1700s Europe rediscovered the Acropolis and an early set of "beautiful people" toured Greece in such numbers that the Greeks coined a new word to describe them—"milordi." The most notorious ravager of the Acropolis, or to some, savior—the controversy still rages—arrived at the turn of the 19th century. Thomas Bruce, seventh Earl of Elgin and ambassador to the Sultan, was advised to bring home drawings and casts from Athens.

Soon Elgin had permission from the Sultan himself not only to make measurements and casts, but "to take away any pieces of stones with old inscriptions or sculptures thereon." When the crew finished, most of

A stonemason carefully chisels a damaged block before new piece of marble is cemented in.

Rusted old iron brace, which helped crack the stone it reinforced, beside a new titanium one.

A Parthenon column betrays erosion, even on its "best" face, long ago turned to show the world.

the surviving pediment statuary and frieze and a whole caryatid were on their way to England. Until the Greeks recently replaced the five other Maidens, superstitious Athenians told visitors, "Sometimes when the wind blows at night, you can hear the other caryatids crying for their sister."

Elgin was immediately attacked as a vandal from all sides (often by other collectors who were doing the same thing). His wife left him for another, he lost his fortune, he sacrificed his collection to the British Museum for less than half of what it cost him. But still, shortly before he died he wrote a friend: "My success in procuring the marbles will never cease to be a matter of utmost gratification to me."

After the Turks were expelled in 1833, one of the first acts of the new Greek government was to begin cleansing their beloved Acropolis. Large scale restoration finally began in 1895. Weathered capitals were turned 180 degrees to show their best faces. By the centennial of Greek Independence in 1933, all that could be done to the Parthenon, short of complete rebuilding, had been done.

Unfortunately, the restorations had an Achilles' heel. After the earthquake of 1894 Greek architect Nicholas Balanos undertook the most urgent conservation. He was a pioneer, but he failed to profit from the lessons of his ancestors, who wrapped their original internal iron supports in lead to prevent rust. Balanos replaced them with unsheathed steel, which rusts, swells, and splits the stones. Today restorers must locate the steel supports with X-ray-like gamma-ray pictures, and replace them with titanium supports.

The Luftwaffe's Stukas appeared in the Athenian skies in World War II, but the Acropolis was left untouched. In April 1941 a prehistoric Greek symbol, the swastika, fluttered over Athens' sacred hill, but a few nights later a teen-age Athenian student and his friend slipped by the Nazi guards, ripped the flag down and escaped. Their defiant exploit, as famous in Greece as any archaeologist's discovery, lives on today in story and song.

Although the Acropolis' popularity rests largely on its charm as a nostalgic ruin, most of the site may gradually become a copy. As one Greek official sadly remarked, the Acropolis "survived all other catastrophes to be defeated by modern-day pollution."

Even if most of the Acropolis eventually becomes a reproduction, the Greeks still will hold the hill in their hearts as their personal symbol of their Hellenism. Today a traveler from Athens in the remotest Greek island or mountain village may be sat down at the taverna, a drink placed before him, and asked, "How is the Acropolis?" Village mothers still tell their children, "You've been beautiful for a thousand years. Go look at the Parthenon and see your face."

Vestiges of original color remain on this statue of a Greek maiden, c. 510 B.C.

Swathed in plaster and securely cradled, one caryatid is en route from porch perch to museum.

Examining plants in a "pollution tent," Ken Tuthill checks growth in ozone, sulfur dioxide atmosphere.

By Michael Olmert

Genes and viruses are harnessed on a farm tended by scientists

Photographs by Stephen Brown

Plant breeder Gerald Coe takes paternal pride in the easier-to-harvest "hairless" sugar beet at right.

At the Beltsville Agricultural Research Center, experimenters redesign crops in ways mother nature never dreamed of

The PhD farmers working at the Beltsville Agricultural Research Center, like farmers anywhere, spend much of their time milking and pruning, digging and delving—doing all the countless tasks that face those charged with increasing the Earth's plenty. But these farmers are equipped not only with hoe and plow; they also use high-pressure liquid chromatographs, scanning electron microscopes and space satellites. Their research spans such realms as the search for plants that can resist pollution (left) and make their own fertilizer, as well as faster-growing chickens and more prolific pigs.

Beltsville, a part of the U.S. Department of Agriculture, is one of the world's most comprehensive laboratories devoted to food production. Animals outnumber people here five to one. The 900 scientists and technicians are continuing the work today that has brought us the Beltsville turkey, the modern blueberry, the everbearing strawberry, and more.

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A peaceful farmstead at dawn, Beltsville is a living lab spanning ultramicroscopic to satellite studies.

Varying light and temperature in "gradient chamber" lets David Lee detect optimum growing conditions.

dor, the center's 7,200 acres of green include pear, peach and apple orchards, soybeans, sugar beets, corn, potatoes, tomatoes, sheep, pigs, cows, poultry, bees, and major collections of seeds, insects, parasites, nematodes, fungi and bacteria. During the last growing season, as I visited a rather out-of-the-way potato field to look for signs of insect damage, I surprised a fine white-tailed deer. It sized me up, finished nibbling, and then bounded for cover. At that moment, the deer and I were about eight miles, as the crow flies, from the U.S. Capitol dome.

In this setting it is not surprising to find some of the scientists resembling hayseeds. Gerald E. Coe is a man pleased to be in this category. For the last 15 years, Dr. Coe, a research geneticist, has been on the trail of a new sugar beet variety, one that promises to revitalize the U.S. sugar beet industry.

The problem with sugar beets is that, when they are harvested, their elaborate secondary roots bring up too much soil. The object of growing the beet in the first place is the taproot only. Pull up any ordinary variety today by its green top and you'll get a pound or so of dirt in the bargain. Coe and his staff have a solution. Their common beet, *Beta vulgaris*, has a reduced rootlet system that is scattered over the taproot surface instead of being packed into tough clusters. Give it a yank and out it comes, clean.

The object of all this is not only to save soil, but to avoid an expensive post-harvest operation that involves a machine—and damages some of the crops in the process. So the new beet should also save money.

Coe seems the quintessential farmer-scholar. He has

a PhD from the University of Texas, grew up on a cotton and sorghum farm that was hit by the Depression, and still sports an old straw hat that gives him the definitive *Grapes of Wrath* look. He is a man of the fields, who spends most of his day (starting at 7 A.M.) among his sugar beets, and only returns to his laboratory office around lunchtime to snack and faintly bow in the direction of paperwork.

The down-to-earthiness of Beltsville scientists is well expressed by Miklos Faust, head of the Beltsville fruit laboratory, who has a simple philosophy: "If your experiment doesn't work, you can always eat it." And so he does. He and others at Beltsville have collected apple, peach and pear trees from around the world to study their characteristics. But the taste-test reigns supreme. Here, a Russian pear, with too few and too chewey fruits. There, a Chinese pear with countless sour fruits about the size of a fingernail.

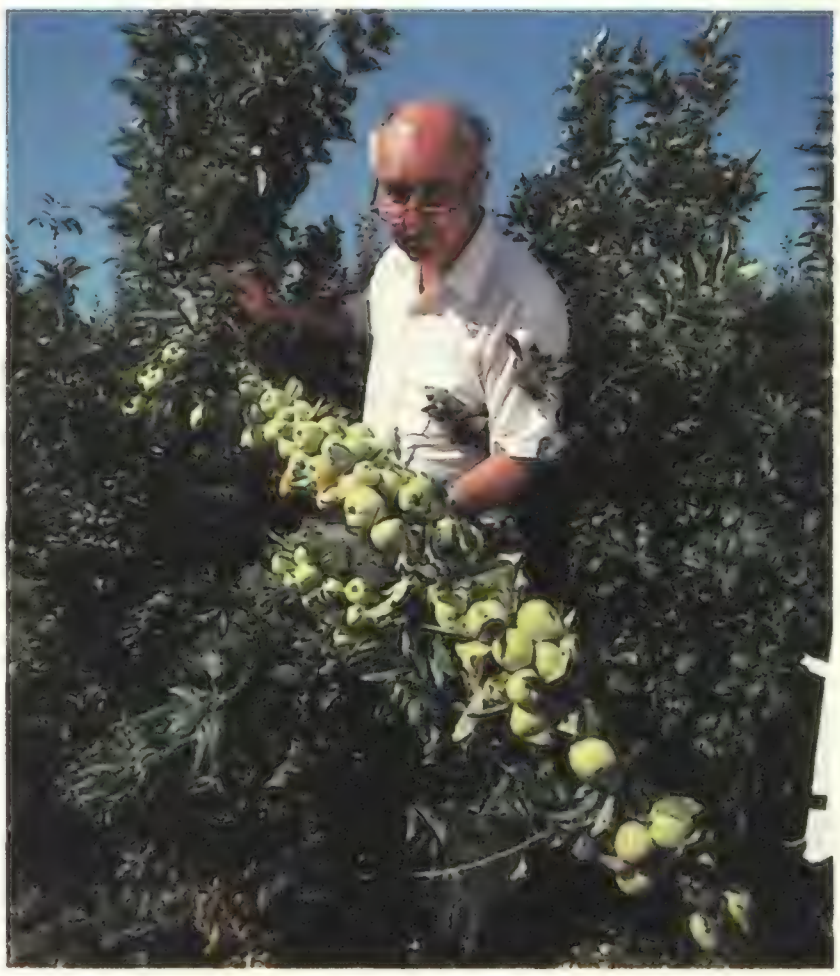
Faust's pride at this moment is focused on his dwarf orchard trees. He has grown row after row of tiny peach and nectarine trees, fully developed at three feet in height, whose branches are so packed with fruit they look like Della Robbia wreaths. At present, the problem with the nectarines is that they too are dwarf, about the size of a 50-cent piece. But the taste is giant, cool and sweet. "Dwarf orchards are the wave of the future," he asserts. They take up less space (about 1,000 trees per acre as they are now in Holland and Italy; up to 4,000 in Israel). The reasoning is simple. There is less shaded area, so all the leaves get sunshine and are producing food for the plant. If you have to spray, you can do it efficiently by hand without helicopters or cherry pickers. And most important, the harvest can be done on foot.

But Faust waxes most poetic when he discusses tissue culturing: "We have the only orchard in the world grown from tissue-cultured trees." This method may soon replace the practice of grafting apple and other fruit trees onto hardier root stocks of other varieties, as done since Biblical times.

Faust explained this as he led me into a clean, well-lighted place, where rack upon rack of apple, blackberry, blueberry and strawberry shoots were in various stages of growth in petri dishes and squat test tubes.

The idea is simple enough. Start with one shoot tip (called a meristem) from a tree with characteristics you're interested in. Plant it in a culture of nutrients and growth hormones, and it will volunteer numerous other shoots. Separate and transfer these shoots to other petri dishes, and the process begins over again. "Subculturing like this can produce thousands of identical trees in a four-month period. The best part," adds Faust, "is that each shoot can now grow on its own roots. And by watching carefully we can ensure that the resulting trees are virus and disease free. You can't say that for trees produced by earlier methods."

Outside, Faust's apples continue to ripen, clustered on loaded branches like strings of grapes. "Such pro-



A believer in "small is beautiful," Miklos Faust sees his dwarf apple trees as the orchards of the future.

Pesticide-resistant Colorado potato beetle may yet be foiled by making crops unappetizing to pests.

An enemy of the corn rootworm, nematode emerges from rootworm's larva, which it killed.

Parasites of Mexican bean beetle, tiny mites that infest the pest cling in clusters to underside of wing.

ductivity is itself a kind of enemy," he says. "Trees loaded with fruit like this are a danger to themselves in high winds. So, what we'll do is practice a kind of birth control on them, embryo abortion." On apple trees, for example, individual fruit set in their blossoms over a five-day period. Spray with growth-regulating hormones in the middle of that time and you can eliminate the early fruits, leaving space for a well-balanced and fruited tree. The rest is easy to foresee, according to Faust: "Just sit back and milk this tree like a cow for the next quarter century. Quite a deal."

Working at the cellular level and in peach micropropagation research is Dr. Freddi Hammerschlag, a plant physiologist in the cell culture laboratory, and a sort of pediatrician to generations of plants yet unborn. Her work supports that of Faust but also includes "culture indexing" of the new plant clones—testing for the presence of internal viral, bacterial or fungal contaminants within the cells to provide relatively pathogen-free, self-rooted peach plants for high-density orchards. "If we can get rid of pathogen problems at this early, cellular level," she says, "we will have trees that grow faster, flower more heartily and yield more fruit."

Do not pick the vegetables

The scientific battle against infectious bugs is itself infected by a spot of humor now and then. In a smallish plot of tomatoes, hard by a rank of greenhouses, an entomologist posted a sign warning: "Do Not Pick Vegetables: Pesticide Testing Experiment." The warning was a fraud, on a par with the tale of the Ozarks farmer who tried to discourage watermelon poachers by penning a sign that announced: "I Poisoned One of These Watermelons." During the night, another sign sprouted, declaring: "So Did I."

The author of the Beltsville sign was William W. Cantelo, who is working on nonchemical ways of controlling the infamous Colorado potato beetle, and simply wanted to keep bypassers from picking his crop. Over the years, the beetle has developed offspring resistant to the strongest of pesticides, even DDT. The beetle is exhausting attempts to stay ahead of it chemically, and is expanding its host range to include tomatoes and eggplant. In the 19th century, the colorful striped insect was harmless enough, and confined its munching to the buffalo burr weed and its foraging range from the Rockies to Texas. As the potato began to be cultivated farther to the West, the beetle became the proverbial kid in a candy store, and chomped its way East, hopping from farm to farm.

At Beltsville, Cantelo is breeding new varieties of tomato and potato specifically for beetle resistance, which means that the new plants won't be appetizing to the beetle. "There is a group of wild tomatoes that resists the bug," he explains, "so we're selecting those types that are horticulturally desirable and crossing them with better breeding lines."

Biocontrol of insects offers another approach to such problems, and Beltsville scientists are active in this field of research. One attractive plan is the release of insect parasites. For example, the Mexican bean beetle is a serious pest in lima and soybean fields. It has no effective enemies, but can be killed by a tiny parasitic wasp (*Pediobius foveolatus*) imported from India. Since the mid-1970s the wasp has been at work for Man in his bean fields. Its only drawback is that it cannot survive cold winter temperatures, so a new brood must be released each spring.

Beltsville entomologist Robert F. Schroeder has recently launched a new attack on the Mexican bean beetle with a tiny parasitic mite, a hundred times smaller than the adult beetle itself, that attaches itself to the insect's underwing area (p. 58) and feeds on its blood. The mite was first observed in Central American bean fields that were somehow avoiding beetle damage, although many adult beetles seemed to be present. Close examination showed that those beetles were loaded with the mites (*Coccipolipus epilachnae*, now identified as a new species). The mite shortens the insect's life cycle by half, it has been shown not to infest beneficial insects like the ladybug, and it seems to survive the winter. Tests are now going on to determine its spreading rate. To measure this, Schroeder releases 50 infected beetles of the same sex, marked with model airplane paint, and then returns to the field a few weeks later to see if unpainted bugs have become infested.

The search is constantly on to find parasites that are attracted to plant pests. A colleague of Schroeder's, Ben Puttler of the USDA station in Columbia, Missouri, has noticed a tiny wasp parasite (it just recently has been described and named *Edovum puttleri*) that lays its eggs on the egg clusters of the Colorado potato beetle. The wasp eggs hatch first and its larvae eat the beetle eggs—killing 65 percent of them, cheaply and without chemical insecticides.

Beltsville is the cosmic center for the study of another kind of parasite, the nematode, a round unsegmented worm that lives in soil, water, plants or even animals. Schroeder and nematologist William R. Nickle are studying a nematode that attacks the corn rootworm (p. 58). Schroeder himself has been to Peru where he has collected hundreds of specimens (*Hexamermis* species). Tests are now going on to ensure that this nematode doesn't kill earthworms, ladybugs or

A frequent contributor to SMITHSONIAN, *the author wrote on the Huntington Library in February.*

the roots of the many crops cultivated by farmers.

But, as might have been expected, there is another side to the nematode story: some species parasitically attack crops. The soybean cyst nematode is lethal to many soybean varieties. The work at Beltsville seeks to identify just why some plants seem to resist the tiny worms, which get inside the root cells and compete with the plant food. One problem is that nematode damage is often hard to diagnose. Nemas seldom kill crops outright. Instead, their victims just look wilted or underfertilized, and production drops.

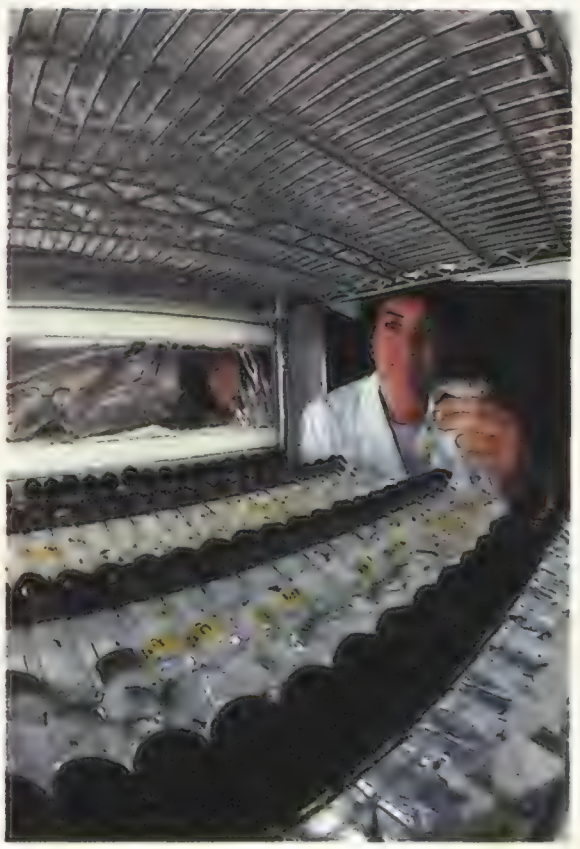
Still, the way a garden plot looks, especially from above, is an important diagnostic tool. The hue of green and the texture and size of leaves are indispensable bellwethers. They tell the farmer when to water or fertilize, to prune or pick. At Beltsville, James E. McMurtrey III is studying light reflectance from crop canopies for later application to space satellites.

Such a space viewpoint could alert farmers to encroachments of pests, incipient drought, or other adverse environmental conditions much sooner and over a much wider geographical scale. The first steps in this direction are now being taken. The instruments are being designed by NASA and calibrated at Beltsville; they will fly on later generations of satellites (current satellites view 59-by-79-meter plots, called "pixels" by the space agency). Right now, microplots of wheat, corn, alfalfa and soybeans are being cultivated to see how they look to either hand-held instruments or satellite prototypes mounted atop trucks.

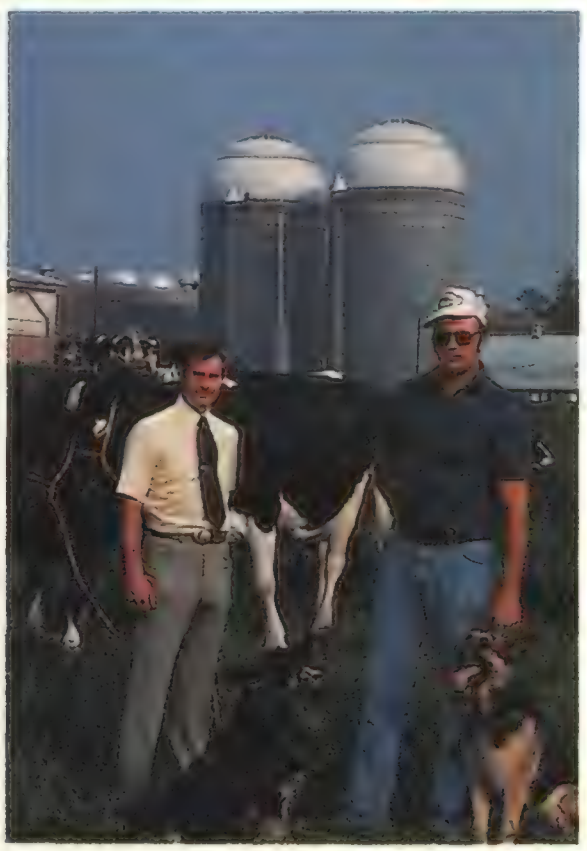
The results not only could be used to predict crop yields and prices for a whole region, but also could make more scientific the applications of water, fertilizer and pesticides to the soil.

Satellites are not the only space-age technology at Beltsville. Karl Norris, Beltsville's modern tinkerer, has created a mechanized egg candler (to cull eggs with blood spots), another device to separate brown eggs from whites, and another to discard tomatoes that have green seeds inside (never a favorite with home-makers). He has also invented a hand-held, ray gun-looking device that instantly measures the amount of

Karl Norris works with on-the-spot electronic analyzer for testing grains.



Freddi Hammerschlag clones peaches for use in high-density orchards.



Harold Hawk and Henry Conley use trained dogs to detect cows in heat.

fat content present in a package of hamburger meat.

The greatest contribution of this agricultural engineer—somewhat unknown outside his field, but widely respected in it (he is the 1978 winner of the Alexander von Humboldt award for agricultural research)—may be his infrared reflectance spectroscope. Essentially, the machine tallies the water, oil and protein content of grain samples. This device, which reads out its results instantly, could be a boon at market time (grain with more than 14 percent water cannot be stored for any appreciable length of time).

To analyze the grain, a sample of seeds is ground and inserted in a viewing cell, which is then placed in the machine. Inside, the mechanism flashes infrared light at the sample and calculates its components by measuring the absorption of light at critical frequency points that correspond to water, protein and oil. The results are visible automatically on a CRT screen. The whole kit, about the size and heft of an early portable television, replaces about a week's worth of analytical chemistry that would have been needed to uncover the same information.

Future extensions of this technology include ways of measuring sugar, fiber, and the elusive "breadmaking" quality of wheats. What gives flour its breadmaking quality is not fully understood yet; it is only known that some flours have it, others don't.

The Beltsville lab has a reputation for cleaning up mysteries. It is well known, for example, for its investigations into some of the smallest organisms in nature: viroids and spiroplasms. Pioneering work into the exact role and structure of viroids, the smallest disease-producing agent known to Man, has been under the direction of T. O. Diener. Viroids cause a number of puzzling diseases in plants, including the mysterious potato spindle tuber and the tomato bunchy top. These diseases showed up in the 1920s and until a few years ago were of unknown origin. Diener and his colleagues have shown them to result from a particle of genetic matter much smaller than a virus, which was dubbed a "viroid," a viruslike organism. A virus kills by getting inside a cell's genetic machinery and forcing it to reproduce viruses. The viroid is much tinier, only about 130,000 daltons in weight (a dalton is equal to the weight of one hydrogen atom); viruses normally range in size from 3.5 million to 50 million daltons. Still, a viroid operates similarly, highjacking a host cell's genetic code and replicating itself at the expense of the plant.

In fact, Diener insists that the viroid is not really an organism at all but rather a tiny strip of RNA, a molecule that may be a leftover product of cell division. As such, the viroid has been around a long time, but only has become a hazard to Man's food chain with the advance of mechanized technology. The diseases are easily spread across acres of genetically exact duplicates from plant to plant on contact with tractors or pruning equipment.

The mechanisms of plant growth and genetic response are a major source of interest at Beltsville, in

James McMurtrey and John Fuchs study crops for satellite monitoring.

Robert Howell's peanuts develop own nitrogen and need less fertilizer.

Bhushan Mandava and Werner Meudt spur plant growth with new hormone.

Protecting chicks with monoclonal antibodies,
Harry Danforth is producing faster-growing poultry.

efforts to get plants to grow faster, produce more of the nutrients we need, or grow in soils formerly thought worthless.

Researchers Bhushan Mandava, Malcolm Thompson and Werner Meudt are members of a team that discovered a natural growth accelerator, brassinolide, which was found to occur in minute amounts in the pollen of the Canadian rape plant. Some 500 pounds of pollen yielded ten milligrams of the amazing hormone which in fact has a steroid structure and is thus akin to the chemicals that some athletes reportedly have taken to increase performance. But at 200 parts per billion, the pollen extract was expensive. The next step was to synthesize the compound chemically and apply it to plants during field tests.

The results are impressive. In the field, the harvests of radishes and lettuce have increased from 15 to 30 percent. In the greenhouse, bean harvests were increased 32 percent. The new plant hormone works by getting seedlings off to a better start, and has its greatest effect when sprayed on seedlings rather than being applied to seeds or roots. In fact, the major benefit of growth acceleration may be to increase yields by quickly pushing a plant past the dangerous stress stage. "It is no accident that deer like to eat tender young shoots; so do all plant-eaters. It's the most vulnerable time for plants," says Meudt. "By shortening the entire time of growth, we can possibly plant and harvest more crops each season. Or reduce our need for fertilizer."

Beltsville's wide-ranging attempts to improve plant crops are mirrored by the research projects aimed at livestock, mainly directed at reproduction, nutrition and animal diseases. The quest, as always, is to increase food production. Beltsville developed the technology to freeze and thaw swine and poultry semen. This has meant, for example, that every farmer has available to him semen from the best reproducing stock. Researchers have their eye on a Chinese breed of pig that is a prodigious procreator, producing litters in lots of 26 piglets, compared to the ten to 16 that is the norm now with domestic swine.

Other efforts are directed toward studying the control of estrus and fertilization in cattle, sheep and swine. The goal is for all herd animals to be inseminated and give birth at about the same time. When this has been accomplished in the past, the effects on survival rates were dramatic.

Even the stockman's time-honored friend and companion, the dog, has been harnessed in the effort to increase the herds. For example, a cow must calve at least once a year if her milk production is to stay at a peak. So it is critical not to miss the times she comes into estrus. Actually, this identification problem is related to the great size of modern dairy herds. In olden days, a farmer knew his cows by name, and so might keep track of their reproductive cycles.

It has long been recognized that cows are more nervous when they are in heat, and that these nerves seem to be exorcised by more pacing and walking about. To test this old theory, researchers put pedometers on selected cows and recorded four times as much activity from cows in estrus. The next step was to develop a portable indicator of the hormonal changes that take place inside the cows. Dogs were selected. Today, trained dogs can detect the estrous cows just by sniffing tiny samples of their milk.

Although it is indeed flashy, this dog trick is just a start. Eventually, the job may be turned over to computerized, electronic sensors that will replace Fido—and maybe the "hayseeds" themselves.

Beltsville turkeys, introduced in 1945, still
are bred for tenderness and plentiful white meat.

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Yellin at his Arch Street studio anvil around 1925, the year he received Philadelphia Civic Award.

Sparks fly from white-hot iron bar being forged in Yellin workshop, still going strong in Philadelphia.

By Ty Harrington

The wizardry of Samuel Yellin, artist in metals

He liked to call himself a blacksmith, and things he wrought in iron live on as a durable testament to vast talent

In the winter of 1905, a blustery, cold night greeted a steamer bound into Philadelphia from England. Among the several hundred immigrants disembarking at the foot of Delaware Avenue stood a rather short, black-haired man wearing an immaculate tweed overcoat and three-piece suit. He looked like a successful London banker on holiday; but broad shoulders and powerful forearms betrayed him as a man of full-time, strenuous physical activity.

Samuel Yellin told immigration officials he was a blacksmith. His trade? Metalwork—any he could find. There is no record that the officials paid any particular attention to the intense 20-year-old, though, if they had, they might have remarked that the United States, humming with industry, was no place for a patient handcraftsman. Yellin would have shrugged off such a comment. He badly needed a setting for his designs in wrought iron, and after reading about the Columbian Exposition in Chicago he sensed that America was approaching the dawn of "a Cathedral Age."

Yellin was right. He had anticipated the coming of

An example of his artistry is airy detail of hammered iron fragment in the Samuel Yellin Museum.

a classical and Gothic revival, a period of one of the greatest building booms in the nation's history. When it arrived, he was ready.

A tireless perfectionist driven by restless energy, Yellin was so talented and prolific that two decades later he had established himself as probably the greatest known artist in wrought iron of all time. He embellished our grandest architecture. He became not only the personification of his medium, but also a spokesman for excellence in all of the arts, fighting a war against mass production: "I am preparing by making my own swords and armor for the battle."

When Samuel Yellin arrived in this country he was not yet old enough to vote, but he was already a highly versatile and experienced smith. He came from a small village in Galicia, Poland. While still a toddler he started drawing and playing with scraps of sheet metal. In early childhood, a small hammer was his favorite toy.

A teacher at his school was so impressed by Yellin's drawings that he invited the seven-year-old to work afternoons at his part-time smithy. At 12 Yellin broke the family tradition of law and apprenticed himself to a small shop. He began to learn the trade under the rigid Old-World tutelage of a stern Russian foreman "who was extremely critical of everything I did and often boxed my ears." Every day, including Sundays, from sunrise to sunset and by candlelight until eight o'clock in the winter, "while other boys were playing I was working in the shop, the windows darkened so we could tell the heat of the flame, and I never regretted a single moment."

For two years Yellin swept floors, fetched groceries and did other routine chores, but already his compulsion to learn the ways of metals set him apart from the other smiths. They gave him the lifelong nickname, "The Devil Born with a Hammer in His Hand."

One day a large order arrived: beds for a local insane asylum. The next morning the smith whom Yellin was assisting turned up for work too drunk to wield a mallet. Yellin took up the tools. The bed he forged drew praise from the most experienced smiths and,

Doorway arch and panels at George Eastman House in Rochester, New York, are Yellin's work.

though by custom Yellin was still classified as a novice apprentice, he was soon given a forge and an assistant of his own. His reputation spread through the Polish countryside. When a farmer came to town to have a special tool made, he would seek out Yellin; when a traveler needed a fitting or a repair, usually Yellin would get the job.

By the age of 17 he was a master craftsman, extremely capable with brass, copper and nickel. But iron, worked by hand, had become almost an obsession. "I work in iron in the belief that I can say in it anything that I wish," he said later. "No material is more plastic, more ductile, more expressive. . . . It has a beauty and a music in it and every hammer mark reflects the personality of the smith."

When his apprenticeship was completed, Yellin was offered a job in the shop, but he was far too restless to settle down to a journeyman's life. Instead, he set out alone across Europe, working his way through the metal shops of Poland, Russia, Austria, Germany, Belgium and England. He spent every minute of his spare time walking city streets, copying the finest medieval wrought iron. Often he worked at a shop only a few months before his wanderlust carried him on. Everywhere he went, his intensity gave fellow workers the feeling he was possessed. The nickname "Devil" traveled with him.

Yellin felt that the time he spent copying the works of medieval masters honed his ability as artist and designer. But in Europe in the early 1900s there was little monumental building going on; there were simply no opportunities to create original works in metal for contemporary architects. So he set out for the New World.

At first, prospects in the United States did not look much brighter. Even if his first job was not actually on an assembly line, it didn't seem much farther up the ladder. Arriving penniless and finding no shop needing a smith, Yellin applied for a job at an ornamental bedpost factory. "The foreman asked what I could do. Lots of things, I told him. Could you make one of these? he said, pointing to a hideous post. I took hold of the material and made one. He seemed surprised I had finished so quickly. Such things, I told him, ought to be done quickly, or better yet, not at all." Yellin was not surprised when he got the job.

It gave him badly needed money, but Yellin found no satisfaction hammering out identical bedposts. "I soon became extremely frustrated and depressed," he later recalled. "If I had the money, I would have taken the first boat home. Whenever I had free time I wandered the back streets, searching Philadelphia for more challenging work, and when I heard the sound of a hammer striking metal, I would walk in and apply for a job. I was miserable, caught in a trap."

After several months of making bedposts he took a job casting metal lamps. "Mass producing lighting fixtures according to popular design made me unhappy. It was like someone who loves symphonies listening to poor music. I began to forget how to smile."

Anything to keep his hand in

In his boredom, Yellin devised a better type of mold for casting. He was rewarded with a raise and assigned the task of replacing all the dies. He finished far ahead of schedule, and so worked himself out of a job.

Again unemployed, Yellin enrolled at the Philadelphia School of Industrial Art to keep his hand in at the forge. His proficiency dazzled the faculty: within a year he was appointed by the dean to head the iron department. This began his lifelong career as teacher and scholar, an avocation he pursued part time, first at the School of Industrial Art, later at the University of Pennsylvania and as a traveling lecturer. Yellin became so knowledgeable in his field that, as a recognized authority, he was chosen to write the definitive article on iron for the 14th (1929) edition of the *Encyclopaedia Britannica.*

In heart and soul, however, Yellin remained a black-

Ty Harrington, who lives in Connecticut, is an author-photographer whose most recent book, Never Too Old, *was published last autumn.*

Small jester is the exquisitely formed handle that turns to open or close a Yellin gate.

This intricate spiral of iron was wrought from one piece of metal, with no welding.

Yellin used this interlocking decorative design, attached to frame of wrought iron, on screens.

At St. Mark's Church, Philadelphia, a fanciful door is embellished with master's handiwork.

Detail of a graceful scroll design shows technique used by Yellin in fashioning grilles.

Beauty in the beast: a head of wrought iron serves as a bolt on an iron door at his museum.

The iron wizardry of Samuel Yellin

Gateway at Washington's National Cathedral, site of what Yellin considered his most important commission.

smith, longing to return to a working forge. As soon as he had saved $150 he rented a fourth-floor attic, installed an anvil and opened his own shop. Conditions in his Philadelphia garret smithy were far from ideal. When Yellin raised his hammer for a full swing, it struck the ceiling. If the wind blew the wrong way, it filled the shop with black smoke. But the Devil persevered, constantly making the rounds of local architects with samples of his designs.

Within a year he had enough small orders for original work to keep three full-time assistants busy. Unfortunately, the constant pounding shook the building so severely that it made work impossible for a surgical-instrument maker three floors below. The shop had to move. But that required money and, despite the flow of commissions, profits were slim.

Yellin stayed on temporarily in the garret, and, by scrimping, saved enough to outfit himself in a new topcoat. Properly attired, he set out to drum up business from the nation's largest architectural firms. He had to haul his heavy samples on the train to New York City, but the response was encouraging. Cass Gilbert, the internationally known American architect, was so impressed that he called out his entire staff to examine the samples. Everyone he visited praised his designs and craftsmanship, but all were understandably reluctant to assign a commission to a shop with only one smith.

The J. P. Morgan estate opens the door

The first real break came when architect Christopher LaFarge, about to assign a small gate for the J. P. Morgan estate on Long Island to a well-known British firm, decided to hold off long enough for Yellin to submit a design proposal. He won the commission and that opened the door to the big time.

Now a steady flow of larger work found its way to his attic. With it came comparative prosperity. Yellin promptly built, on Arch Street in West Philadelphia, a Spanish-style atelier, including room for his dream of a museum and a library, as well as a high-ceilinged medieval office—an elegant establishment that was a far cry from his first forge. After 15 years in this country, 35-year-old Samuel Yellin had brought himself to the attention of the most prominent architects in the land. He made gateways, window grilles, balconies, chests and boxes, locks, fireplace screens, weathervanes, beds and tables and chairs, hinges, door pulls, doors, mailboxes, signposts and lamps—and no two were exactly alike. If he were asked to execute someone else's design, Yellin would politely refuse the commission.

The shop had all the work the master and his assistants could handle: Yellin had reached the height of his profession. But the Devil was restless. The new

A teller's window at the Federal Reserve Bank of New York, done when artist was virtually unknown.

This entrance to Sterling Memorial Library at Yale displays Yellin's craftsmanship in monel metal.

Cathedral Age he had predicted was in full swing; everywhere the country was abuilding, with palatial private homes and monumental government offices, with colleges, libraries and new corporate headquarters. It was the setting Yellin sought for his creations, an opportunity to embellish the New World with the best architectural artwork, displayed publicly.

His son Harvey recalls: "My father rarely slept except fitfully. He kept a yellow pad next to his bed and would lie there filling pages with sketches and patterns. Even during the day, he used his uncanny ability to judge exact distances at a glance, visualizing spaces filled with iron. He was truly possessed, not by a demon, but with extraordinary energy, drive and determination."

The architect's design for a New York Federal Reserve Bank in 1920 included a great deal of wrought iron. However, except for general guidelines, the architectural firm of York and Sawyer left out the details of the form the metal was to take. Instead, they invited the prominent metalworkers of America to submit designs for a competition—the best entry would win.

Yellin's shop was still too small to compete with the larger companies for such a major project, but when he heard of the contest he jumped on a train to New York City. He went directly to Philip Sawyer of York and Sawyer, and asked permission to throw his hammer into the ring. The architect tried to discourage him: the undertaking would be an enormous task for even the largest shops; for a lone smith it would be impossible. But Sawyer finally accepted his entry.

Several months later, when Yellin's designs arrived, the judges unanimously agreed that his were far and away the best submitted. Despite still serious doubts that the small shop could handle the enormous volume of work, Yellin was awarded the $300,000 commission—the largest of its kind in history. It is difficult to imagine that Samuel Yellin was not overwhelmed at the enormity of the undertaking, but he immediately began organizing and expanding his business. Across from his Spanish-style smithy on Arch Street he built a factorylike second shop with 45 more forges, then hired the scores of smiths, helpers and draftsmen needed to execute the myriad designs he must produce.

What he wrought then still stands today. Massive grilles guard the Federal Reserve's windows; huge lamps hang by the entrance; inside, large decorative panels conceal radiators; reticular gates defend the

entrances to corridors; dozens of tellers are secure behind an intricate bank screen running the business counter's entire 500 feet—and all are handwrought in iron. The array is seemingly endless: there are hundreds of lighting fixtures alone, including the lamps beside the rows of phone booths, not to mention the fireplace screens and tools, all of the clocks, even the inkwells on the customers' wrought-iron desks.

All of this was not created overnight. Under Yellin's constant, close supervision, 200 men labored for more than two years, hammering, twisting, bending, splitting and chiseling the patterns into iron. Arch Street supplied the Reserve with many works not called for in the architect's plans. Yellin simply could not pass up an excuse to embellish with iron.

After this tour de force, the Samuel Yellin Metalworkers flourished. Requests came from throughout the country: Grace Cathedral in San Francisco, Clark Library in Los Angeles; the National Bank on Nantucket Island; in Washington, D.C., the Chamber of Commerce, the Federal Reserve Board Building and the National Cathedral; the courthouse in Sarasota, Florida; Yale, Harvard, Princeton, Bowdoin and Northwestern; more than 30 buildings in Pennsylvania, including the Curtis Institute of Music, the University of Pennsylvania and the University of Pittsburgh. The complete list of private homes fills many pages.

Now when an immigrant arrived in Philadelphia and said he was a blacksmith, he was sent to Arch Street. "Whether you could make a nail or a suit of armor, as soon as you got off the boat there was a job for you at Yellin's," says Max Segal, one of only two Samuel Yellin metalworkers thought to be still alive. "He had big work and small work. He needed trained people badly because he had so much work—and from among the people he hired, he got the finest smiths in the world.

A metalworkers' League of Nations

"Yellin produced so many designs it took nearly 200 workers to keep up with him. Imagine the sound of 200 hammers striking metal at the same time. The craftsmen were from all over the world and each spoke his own language; it was like the League of Nations. At lunch they ate separately in small groups because they had difficulty talking to each other, but after lunch they all spoke the same language with a hammer. Yellin just gave you a job and went away. He might make a suggestion now and then, but he didn't stand over you. No matter how much time it took to finish, it didn't matter. You had as long as you needed to make it right—and if, when you finished, you weren't satisfied, you could throw it away and start over."

A dialogue in wrought iron between two heads that Harvey Yellin, son of the artist, says

Typical iron figment of Yellin's imagination, sea monster—or whatever—stands 20 inches high.

were made "for fun" by his father, who never made two heads exactly alike, whatever the job.

A small grotesque bears the mark of the sculptor, who never made clay models prior to work at anvil.

Time, when measured against quality, was irrelevant under Yellin's law. In downtown Philadelphia, for instance, the gates for the Packard Building are 21 feet across and 33 feet high. All ten tons are meticulous handwork, hammered and split and twisted and carved for 12 months. The Harkness Memorial gate at Yale took six months.

Once in a design calling for soldiers, he followed the tradition of the great sculptors, by leaving their details crude and flat in his drawings because, he said, "they will grow up at the forge."

The Devil could speak eloquently

There were instances when the Devil showed up to put final touches on an assembled job and decided to scrap the entire work because he thought it just wasn't right. This, to the men in the shop, was a source of pride rather than a reprimand. Yellin couldn't tolerate angles that were an eighth of an inch out of line. "A piece of work can only be good or bad. I cannot afford to do anything inferior to the best I know."

Everyone in the shop—draftsmen and others who did not do the actual metalworking—had to take in-house courses in basic ironworking; metalworkers were asked to become knowledgeable in other mediums: "A smith cannot busy himself with iron alone," Yellin once wrote. "He must be on familiar terms with his brother crafts—to speak of one of the arts is to include them all."

To encourage study Yellin filled the shop's museum with a personal collection of wrought iron—at the time, far surpassing that of the medieval department of the Metropolitan Museum of Art in New York City. "A museum," he said, "is the craftsman's library." Yellin's actual library was filled with hundreds of volumes on arts and crafts in many different languages.

As the years passed, he sought more and more to make his shop the fulcrum for a crafts revival that would produce a generation of American masters. In addition to his regular teaching duties at the University of Pennsylvania and his lectures, he now opened the gates of his shop, the museum and the library every evening "to those who want to learn."

Much to his surprise, he became the first individual who was not a public figure to receive the prestigious Philadelphia Civic Award—with its $10,000 prize. Yellin took the occasion to make a plea for a perfectionist school for craftsmen: "It has become my ruling passion to found a school. . . . In the handicrafts of today so much is false, so little is real. There is so imperfect an understanding of the limitations of a material."

The school was never to become a reality, though Yellin spent a good deal of his time petitioning for funds. He became more restless and energetic than

ever, puffing on his pipe, striding around the shop emptying his pipe, refilling it, lighting it and puffing again, sitting with a draftsman for a few minutes, then pacing alone in his medieval office, always arguing and pleading for things to be made beautiful or not at all.

He was personally fastidious. Often when ordering food he would specify, "I'd like an egg, but don't take it out of the shell," or "I'll have an apple, but don't peel it." When he was invited out to dinner he often told the host in advance what he would like to be served. "What a peculiar person I am since, unless I can get really good food, I would prefer to do without and starve—and this same mental attitude applies to most of the things occurring in the course of my life."

In Florida's Bok Tower Gardens, wrought-iron birds are finials on the carillon tower bridge.

Yellin's habits, on the whole, were, if highly irregular, very regularly so. He was always in bed between ten and eleven—but there were incessant hours of delving into his personal library and of sketching. He was always immaculately dressed and spotlessly clean—even his forge-working hands were carefully rubbed regularly with Vaseline to keep them supple. Harvey Yellin recalls that his father liked to go to the movies; he rarely, however, sat through an entire show unless the theater was very cool.

In his lighter moments the serious perfectionist seemed almost to step out of character: he was said to be a great storyteller with a strong sense of humor. Although he had an unmistakable air of authority, those who knew him said he was very modest generally—but when it came to iron, he knew that he knew.

When Yellin was 45 and had been turning out his great works for only a decade, the stock market crash and the beginning of the Great Depression brought a halt to the era of lavish construction. But by then Yellin was comfortably off and could have simply shut down most of his forges. Instead, determined to keep the masters he had trained working, Yellin brought out his sketchbooks and said, "Make one of this and one of that." Throughout the Depression he kept them working, executing samples of his designs—fragments of gates and grilles—draining the personal fortune that he had amassed during better times.

Once when asked how he could spend his own money to keep the forges blazing, Yellin revealed his attitude toward the dollar: "If you want to know what God thinks of money," he said dryly, "just look at the people he gives it to!"

In his mid-40s Yellin suffered a severe heart attack which ended his vigorous working career, but it was during his next ten years of forced rest that his mind was most active. He constantly sketched new designs—many now considered his very finest. They were then executed by the masters in his shop with whom he kept in constant touch through fatherly memoranda, letters, notes and, when his health permitted, personal visits as well.

Yellin died at the age of 54 in 1940, just as the era of skyscrapers—which Yellin scornfully called "concrete boxes"—with no room for wrought iron was in full swing, but his spirit lives on as the modern metalworker's muse. "When I die," he once noted, "I will take forge, hammers and anvil with me, and when I go before the gates of heaven, if I am denied admission I will fashion my own key."

Repoussé brass door of Bok Tower depicts Biblical story of creation; Yellin signed "Let there be light" panel.

By John W. Ripley

Romance and joy, tears and heartache, and all for a nickel

This reminder to the audience to "mind your manners" was projected before the show at the nickelodeon.

These turn-of-the-century glass song slides evoke memories of pleasant afternoons at the nickelodeon, when everyone sang along

The women's cheeks were flushed with pink, the men were dapper and sleekly handsome; right was right and wrong was wrong, and love was hearts and flowers. Those were the days—the days of the nickelodeon song slide.

Over the course of 20 years hundreds of thousands of them were made in the United States. Most, unfortunately, were destroyed, and these relics of nickelodeons and vaudeville are today among the scarcest memorabilia of the theater. (The small fraternity of collectors, of whom I am one, still regards as epochal the chance discovery some 30 years ago of a forgotten cache of some 20,000 song slides, the stock of the St. Louis (Missouri) Calcium Light Company—"the largest song slide rental exchange in the United States.") All the song slides in this article, with the exception of *The Little Lost Child*, are from that stock.

To those of a certain age, some of the faces in the slides may look familiar—and they should. The late Gerald D. McDonald of the New York Public Library revealed that at least 20 stars of silent films had, prior to their film careers, posed for song slides. Thus, their initial screen appearances were in color, probably more glamorous than in monochrome "flicks."

Live-model song slides—the graphics used in illustrated song performances—first appeared at the turn of the century in cabarets and variety theaters. There, professional vocalists billed as "song illustrators" introduced new ballads with projected slides, obviously as entertainment but actually to stimulate sales of sheet music.

By 1906, as the popularity of sentimental ballads began to slip, a new form of entertainment appeared that eventually spread throughout the land. That was the coming of the nickelodeon—the so-called five-cent movie houses that were the ancestors of today's motion picture theaters. With the nickelodeon boom came an unprecedented demand for song slides.

Generally regarded in show business as a cheap program filler—a pad—an illustrated song performance usually required three staffers: A vocalist, often a hometown semipro; an accompanist, the house pianist; and a projectionist with a series or set of hand-colored glass slides. Each slide was designed to illustrate one or more lines of "the very latest hit song from New York City" or a popular old favorite. Some film projectors were equipped to project song slides as well as advertising slides and those mind-your-manners reminders: Hats Off, Do Not Spit on the Floor, and other thou-shalt-nots.

Song slides were distributed in a number of ways. They were usually purchased by film exchanges and distributed to exhibitors on a rental basis. Publishers were also only too pleased to "loan" slides directly to professional song illustrators, often with no concern that the slides be returned.

Whether an illustrated song performance was given as an opener or a between-reels pad in some tawdry, ill-ventilated storefront nickelodeon (vaudeville joke:

Lillian Walker, "dimpled darling" of silents, posed for song slides such as *Keep Your Foot on the Soft Pedal.*

The Little Lost Child was probably the earliest ballad illustrated by live-model song slides.

Generally the featured couple were limited to holding hands, but in *Somebody Wants You*, they kissed.

Many of the songs were tearjerkers, and not the least among them, *Why Doesn't Santa Claus Go Next Door?*

A very popular theme for song slides was the courtship between "the girl" and her "lover."

You pay a nickel but you get a scent back) or in a vaudeville theater, the routine was pretty much the same. Standing beside the screen, the vocalist would sing the verses of a popular song, but only a single chorus, while the screen was filled with a succession of appropriate scenes on slides. Then came the singalong.

Words of the chorus were flashed on the screen, headed by the request: ALL JOIN IN THE CHORUS. The singer-turned-choral-director invited the audience to join in singing the chorus and an encore, and finally pleaded, "just one more time." On and on until, homeward bound, the participants would sing, hum or whistle the tune, determined to buy the sheet music on the morrow. That's how the sponsors—the music publishers—had planned it. This mass brainwashing was one of the hottest plugs in the music business.

A number of all-time song hits were promoted nationwide with slides. Among the evergreens: *Wait Till the Sun Shines, Nellie; Down by the Old Mill Stream; By the Light of the Silvery Moon;* and a song whose chorus is sung by millions who have never heard its two verses—*Take Me Out to the Ball Game.*

Music dealers who kept abreast of the current songs at neighborhood music houses were rarely stumped when patrons asked for a copy of "that song we heard at the Bijou," or the Electric or the Wonderland.

The nickelodeons' receptiveness to vocal talent was a boon for local aspiring young singers. To the girl next door, or the boy who was formerly the soloist of

Anita Stewart is in heart stolen by robber from the vault in *I Want Everyone to Love Me.*

Alice Joyce, a favorite model of New York photographers, sat for this surreal seaside slide.

his high school glee club, nickelodeons provided an excellent showcase for their talents.

The late John Charles Thomas, concert baritone, recalled the thrill of singing with slides when he was a teen-ager at a suburban Baltimore nickel theater. "I was paid three shiny half-dollars every night. Had the manager known, he could have had me for free."

Among the show-business luminaries whose careers began as semipro song illustrators were George Jessel and Al Jolson.

Predictably, at the height of illustrated song's popularity, several claimants for its invention popped up. Most authorities agree, however, that the live-model slides which were to be the popular style for the next two decades originated in the inventive mind of George H. Thomas, stage electrician at a Brooklyn theater. The inspiration for the slides evidently came to Thomas while he was watching a performance of the perennial melodrama, *The Old Homestead,* starring Denman Thompson.

At a climactic point in the action, a male quartet rendered softly and soulfully an old, old song, *Where Is My Wand'ring Boy Tonight?* A possible answer appeared on the screen: a young man at the bar of a saloon. Only a single slide was shown, possibly because following the chap's wanderings too closely might be unsuitable for the family trade. That one slide convinced Thomas that he might use illustrated song slides as a new plugging gimmick. He finally teamed up with a pair of unknown songsmiths, Edward B.

The audience could only sympathize with child as she cried *There's Another Picture in My Mamma's Frame.*

Anita Stewart immersed herself in *Pots and Pans,* a song performed in the 1911 Ziegfeld Follies.

Popular songs were illustrated with a song slide series at the nickelodeon. The three slides at right illustrated *Take Me Out For A Joy Ride* written by Kerry Mills and Ren Shields in 1909.

Sweet little, neat little Gwendolin Fields
She was just daffy 'bout automobiles. . . .
Take me out for a joy ride/A girl ride, a boy ride
I'm as reckless as I can be
I don't care what becomes of me. . . .
Fly little, sly little Rudolph O'Neil
Took her out once in his automobile
Ten miles from town motor broke down, of course
Farmers all gathered and yelled, "Get a horse"
Nothing to carry her home could be found
A marathon she had to do back to town
And now she's laid up/With both feet in a sling
So never again/Will sweet Gwendolin sing. . . .

Marks and Joseph W. Stern, who were about to publish their first collaboration, *The Little Lost Child, or The Passing Policeman*. They agreed that live-model slides would be the ideal vehicle for launching their new ballad.

The Little Lost Child, published and illustrated about 1894, was neither better nor worse than countless other sobbers of the so-called Gay Nineties. The contrived story line opens with little Jennie, whose parents have been separated for years (her father is a policeman), lost on the streets of a big city. A passing policeman escorts her to a precinct station. Soon, a mother bursts into the station to inquire after her missing daughter, only to discover the child safe in the care of the passing policeman, who has already deduced that the girl is his own daughter and her mother, his wife. To the bewildered Jennie, her father explains the situation in the ballad's refrain:

For you were a babe in arms
When your mother left me one day,
Left me at home, deserted, alone,
And took you, my child, away.

A second-verse, last-line reconciliation unites the little family for a happy ending.

To the End of the World with You featured Francis X. Bushman, who began his acting career on the stage.

Following reports of the enthusiastic reception accorded *The Little Lost Child* song-play, the major music publishers, sensing a new trend in the highly competitive profession of song plugging, arranged to follow the lead of Marks and Stern. Among the most successful slide makers for the Tin Pan Alley publishers were DeWitt C. Wheeler, a pioneer in the lantern slide business, and Scott and Van Altena, newcomers in the trade. John D. Scott and Edward Van Altena nonetheless had years of experience in making educational lantern slides, Scott as a colorist and Van Altena as a photographer.

Every spring, publishers of popular songs, intent on making early deliveries of the annual crop of sheet music extolling the joy of love in Maytime or honeymoon in Junetime, insisted on preseason deliveries of accompanying song slides. Out of season, slide photog-

Historian Ripley collects turn-of-the-century memorabilia and is publications director for the Shawnee County Historical Society in Topeka. He was assisted in his research by Nancy Bergh.

raphers had only their usual scenic backgrounds—in the parks—which were either snow-covered or devoid of greenery. They had to resort to their only alternative, stage mock-ups. Models were posed in front of backdrops and flats painted to resemble sylvan groves or tree-lined gardens. Hardly anyone was fooled.

However, creating lifelike June scenes in January was just one of several techniques that Jack Scott and Ed Van Altena exhibited to their somewhat awed competition. Drawing from their extensive stock of 4-by-5-inch glass plate background negatives, the partners produced not only a wide variety of out-of-season slide scenes, but also believable settings for songs of far-away lands such as *My Turkish Opal, The Flower of Singapore*, and a raft of nostalgic ballads about "dear old Ireland" and "dear old Dixie," without leaving their studio in New York City.

The partners' usual procedure in making a set of song slides, according to Van Altena, began with a conference with the song's publisher to get approval of a submitted scenario of about 12 picture slides plus two additional slides, one each for the title and chorus.

To make the picture slides, models assumed various poses for the camera in front of the most unromantic setting imaginable—a jet black velvet curtain. Each glass negative, when developed, was superimposed over an appropriate background negative from which an indicated area of emulsion had been stripped. Frequently two, occasionally three, stripped negatives were added in perfect register to make the taped-together composite negative. Reduction by projection of the composite negative produced the end product, a standard 3¼-by-4-inch lantern slide.

Coloring, for which the Scott and Van Altena slides were noted, was done by a crew using as a guide a master set that had been prepared by Jack Scott. The uniform excellence of the slides apparently resulted from Scott's insistence that the water-soluble colors be applied greatly diluted, and several times over, rather than the hurried single-tinting method of competitors.

Although Scott and Van Altena's harmless fakery in out-of-season slides was intended to delude audiences, their uniquely different "effect" slides were so fantastic that they seemed spectacularly unreal.

The purpose of "effect" slides was to create interest in otherwise commonplace pictures. Using composite

The inimitable Norma Talmadge in *Any Old Time or Any Old Place* started modeling when she was 14.

Another reminder to the sometimes rowdy audiences, this one directed to the "gentlemen" in the crowd.

negatives, models appeared in extreme closeups above which might be seen air-borne doves, Cupids or other symbols of undying love. Audiences loved the innovation. One exhibitor told Van Altena that girls and women would often sit through several shows, fascinated by the fantasy of the slides.

The illustrated song slide presentations in the nickelodeons also played a role in assisting newly arrived immigrants from Central Europe with the English language. One immigrant, Mrs. Joe Fleisher, recalled that soon after she and her family had settled on Manhattan's Lower East Side, she was introduced to the cultural advantages available at a neighborhood nickelodeon, in the company of other young mothers, immigrants all.

"For only five cents—kids, two for a nickel—the manager would let us stall all afternoon. So we would get comfortable, take off our slippers and nurse our babies for three, sometimes four, films with illustrated songs in between. After we heard a song several times, with the pictures, and joined in the singing, most of us could understand what the song was about. That's how we learned to speak English. Ask anybody." An audiovisual course in English at five cents a lesson.

Many biographical accounts of film personalities who modeled for song slides prior to movies overlook that period as though it were unmentionable. Not so in the case of one of the greatest, Norma Talmadge. One autobiographical account of the late Miss Talmadge's illustrious career credits her brief experience in front of Scott and Van Altena's cameras as helpful in her later film work.

After posing for several sets of slides, Norma, then only 14, applied for work in motion pictures at Vitagraph's Flatbush studio in Brooklyn. In the space on the application form asking for "previous experience," Norma wrote, "The leading character in many tableaux and school plays. Have also posed for song slides." She was eventually hired, and so began nearly 20 years in pictures.

Norma told a classmate at Brooklyn's Erasmus Hall High School, Anita Stewart, of the easy money to be made in posing for slides—at least $3 a day.

Stewart later recalled the interview with Scott, and described him as "the kindest man I ever knew." He was to direct her modeling for many songs. In 1912, she joined Vitagraph for a most successful career in films. Incidentally, Van Altena—and presumably others in the trade—referred to the principal models in love songs as "the girl" and the leading man as "the lover," even though their demonstration of affection on slides was generally limited to hand holding.

The millions of surprisingly sturdy, laminated song slides that once were in circulation throughout the nation have almost completely disappeared. In 1939, Van Altena approached the picture magazine *Life* with an idea for a photo feature about song slides. He was asked to submit a complete set of his slides illustrating any well-known song. Delighted at the prospect of national publicity for his once-famous slides, Van Altena searched through cases of slides and negatives, leftovers from the nickelodeon years. No luck. He phoned former customers and a few retired song illustrators as well as photo archives without locating as much as a single slide. So, Van Altena, whose former partnership may have made more than a half-million song slides, gave up. So did *Life*.

Sad to relate, most slide stocks ended their nickelodeon days buried unceremoniously in public dumping grounds. About 1914, when the last of the nickelodeons had either closed or reopened enlarged and redecorated as opulent picture palaces offering multireel feature films, the good old illustrated song filler was no longer wanted. Exchanges, desperately needing more space for film cans, and unable to give away their stocks of slides, called in the trash man and paid for hauling slides away.

Another factor that contributed to the demise of song slides was the arrival of upbeat ragtime songs, hardly adaptable for song slides. Unsung and unwanted, the illustrated song, taking a cue from Houdini, executed the Great Disappearing Act.

This example of an "effect" slide illustrated Irving Berlin's *Somebody's Coming to My House*.

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How the Jetta works: The suspension.

People who have ridden in a Jetta notice how smooth and responsive it feels. Like cars costing three times as much.

It's no illusion. It's by design. The Jetta has four-wheel independent suspension. Each radial tire stays in constant contact with the road. And, each remains virtually unaffected by the actions of the others.

Stabilizer bars minimize body lean in turns. And rack-and-pinion steering coupled with MacPherson struts makes its maneuvering light and precise.

Nothing else is a Volkswagen.

The Jetta also comes packed with other standard features like front-wheel drive, fuel injection and a trunk big enough to pack six pullmans. Upright. It even has VW's Formula-E System Upshift Light which has upped its mileage by 12% over last year.

And, speaking of mileage, the Jetta is also available in diesel. So now you can enjoy its incredibly smooth ride while hardly feeling the pinch.

Diesel EPA 58 highway estimate, and an estimated 42 mpg. Gas EPA 40 highway estimate, and an estimated 28 mpg. (Use "estimated mpg" for comparisons. Mileage varies with weather, speed and trip length. Actual highway mileage will probably be less.)

Don Dixon

The watery world of Thraxisp, a weekend's work at a science-fiction convention, floats in space.

By William K. Hartmann

A 'what-if' world comes to life in Los Angeles

Eight artists, writers and scientists closet themselves to build and populate an imaginary but entirely plausible planet

When sculptor Joel Hagen asked me to be on a panel to create an imaginary world, I was not sure what I was getting into. His idea was to carry out an experiment in collaborative creativity, and to put the creative process itself in view of an audience for three days. Eight of us with diverse skills were to concoct in our minds and on paper a world complete with its own geologic evolution, environment and biology. The setting for our experiment was to be a well-equipped

William K. Hartmann

The "sun" sets over a water-filled impact crater; mushroomlike plants sway on their moorings.

The fossil skull of an Erret, actually a ceramic model, adds verisimilitude to the project.

Evolved from a flying fish, this "Erret" is the intelligent life-form at south pole of planet.

seminar room provided for us by Equicon, a Los Angeles science-fiction convention.

Science-fiction fans are a subculture of enthusiasts whose vision of the world stretches in space and time far beyond the boundaries of their own towns or century. They hold dozens of conventions each year, ranging from local campus affairs to a major annual "Worldcon," where awards are given for the best books, stories, films and other artworks; costume parties and balls re-create favorite interplanetary bistros; and tens of thousands of dollars change hands in the purchase of paintings, sculpture and the like. As in most science-fiction enterprises, our "Build-a-World" panel was an exercise in scientific fantasy—romance in the Jules Verne sense. Consider the panel—all from California save one out-of-state soul, myself. Joel Hagen is a 34-year-old ceramicist and sculptor who specializes in creating detailed "fossils" of imaginary extraterrestrial animals (above). Larry Niven is known for his solid background in physics and his knack for creating complex, convincing alien characters. His novels feature imaginative settings; in his *Ringworld,* an artificial ring fully encircles a distant star. Paul Preuss wrote in his novel, *The Gates of Heaven,* about a peculiar mishap befalling the crew of an asteroid-exploring expedition organized by a space colony trying to gain independence from the United States in the year 2024.

Among the artists involved, painter and globe maker Rick Sternbach recently won an Emmy for his astronomical art on Carl Sagan's *Cosmos* series. Don Dixon, author of the recently published pictorial atlas, *Uni-*

verse, is widely known for his astronomical "spacescapes," realistic paintings of various local and extrasolar scenes. Pat Ortega makes unique, meticulous anatomical drawings in a genre somewhere in the triangular art space bounded by medical illustrators, Audubon and Darwin. Her sketches show imaginary extraterrestrial animals (p. 90), often with marginal field notes in a fine, 19th-century naturalist's hand. Art Costa is an animator who created stop-motion studies of the life-forms we were conjuring, and managed the video camera taping our work. And I, when not transported through hyperspace warps to the unearthly world of Los Angeles, am a planetary astronomer and sometime painter and writer in Tucson.

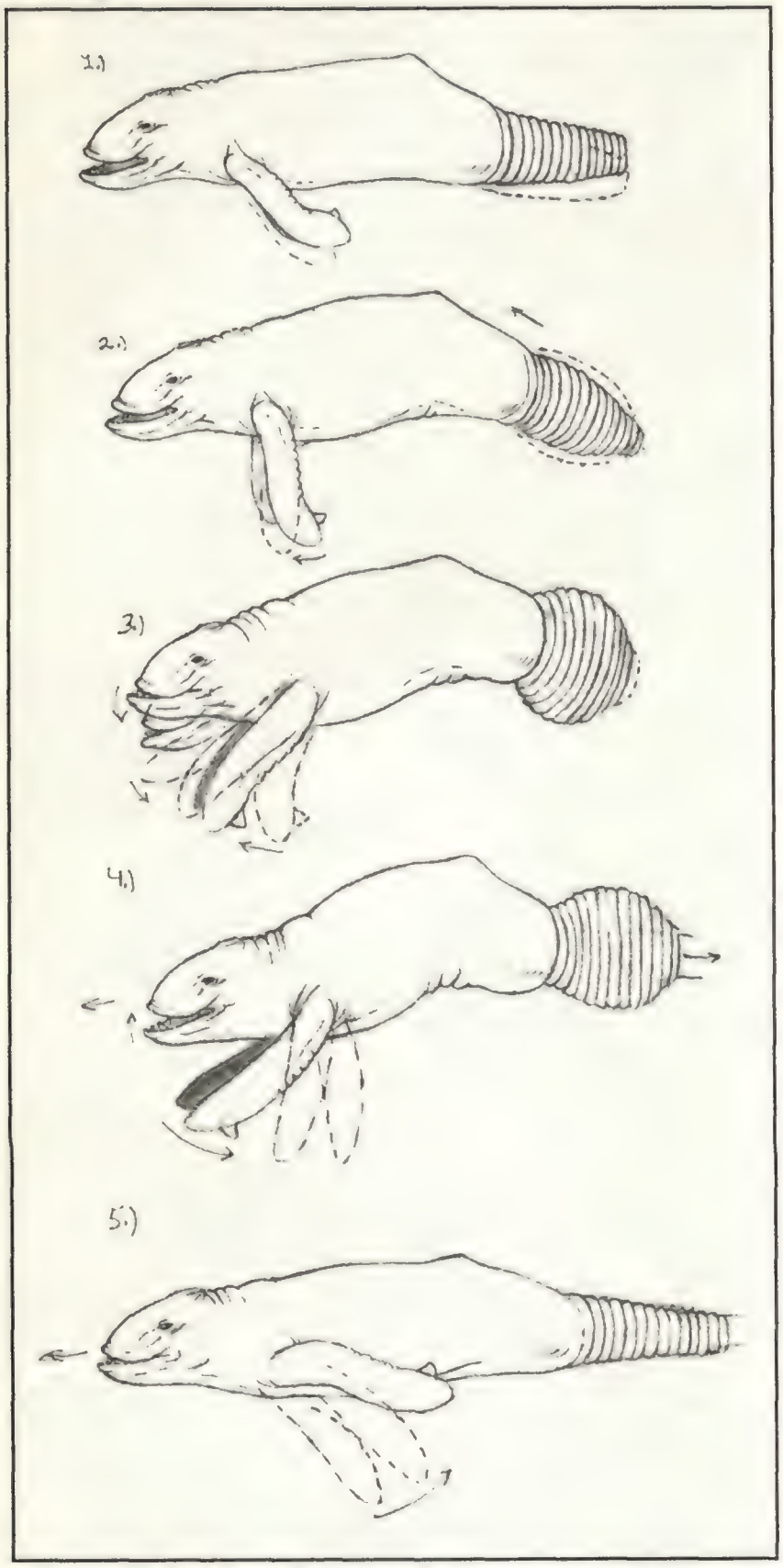
Our goal was that of any science-fiction writer trying to create an alien planetary setting, except that we wanted to draw on a wider range of approaches than one author might, and we wanted to start with premises completely plausible, within current scientific knowledge. We wanted to follow these premises to their conclusions without shading our logic for the benefit of some dramatic story line.

We would start with the astronomical and geological characteristics of our imaginary world, based on as solid a scientific foundation as we could muster. Following principles such as those discovered during the *Voyager* flights to Jupiter and Saturn, we could say some things about how this world would evolve geologically and climatically, once its initial characteristics were specified. Finally, we would take the big plunge and try to imagine what life-forms might evolve in such an environment. As Paul Preuss pre-

Joel Hagen

An Erret harvests pods to make a strong adhesive, one adaptation to a metal-poor environment.

Pat Ortega



Preliminary sketches show the sequence by which a jet-propelled miniature whale can make a sudden dash from danger. From top to bottom, the whale takes water into the chamber that constitutes the entire caudal portion of its body, then expels it rapidly, spurting forward from the sudden thrust. The drawings are part of a page of fanciful creatures, each shown with a counterpart from Earth (the front portion of this whale would not look out of place in our own oceans). Once the eight panelists had chosen a "what-if" variation on known biology, they made every other aspect of their creation as close to known organisms as possible. They followed the same conservative philosophy with Thraxisp itself.

dicted in our first day's *World Builders' Bulletin*, "It is almost certain that intelligent species will appear no later than Sunday afternoon."

To carry on such wonderful speculation raises profound questions. For example, isn't this utter nonsense? Or, aren't our marbles coming loose?

I concluded that our enterprise was an exercising of intellectual muscles. In day-to-day work, a scientist must stick very close to the "known facts." But during the creative business of setting up a new research program, scientists flex their understanding by asking "What if?" What if the sun's luminosity had fluctuated during geological history? What if Newton's gravitational constant has increased by one percent every billion years? This, too, is the trade of the science-fiction writer, who applies his best understanding of science and human nature to answer "what if" questions. What if one of the mile-wide asteroids that cross Earth's orbit actually hit the Earth? What if an alien spaceship landed on the White House lawn?

Realistic planet, common star

By thus slightly loosening the shackles of reality, fantasists of either scientific or science-fiction inclination can experience remarkable intellectual exhilaration—testing their understanding of how things work in the context of a suddenly freer universe. Like any calisthenics, it is somewhere between fun and work.

No scientist yet knows if there are planets around other stars, but near certain newborn stars we have detected mineral dust of the type that spawned our planets. So, even as scientists continue to pursue sophisticated tests to detect planets near other stars, we met to make up our own as realistically and conservatively as we could.

We decided to put this world in orbit around one of the most common types of stars—a reddish star with about one-third the mass of the sun and 70 percent of the solar diameter. Such a star evolves more slowly than the sun and would be stable over a long time (in contrast, more massive stars evolve faster and often explode; they would be poor candidates to have stable planetary environments where life could arise). We assumed a star rather older than the sun, of a known type that has fewer heavy elements.

Unlike the sun, most stars have other stars orbiting around them. These complex systems may be unlikely places for planets to form. Some scientists regard our system as an extreme case of a double-star system, where the secondary object (Jupiter) has only 1/1000 of the mass of the primary star (the sun), and hence was simply too small to turn into a second star (SMITHSONIAN, September 1974). Acting on our principle of conservative assumptions, therefore, we gave our star

In this rendering by the same artist, the jet whale as it might appear in life. It is only eight inches long.

a secondary object which was also not quite a star, but a giant gaseous planet about three times as big as Jupiter. Restless astrophysicists have already calculated evolutionary histories for such an object; it would get hot and give off considerable infrared radiation (as does Jupiter itself to a lesser extent). It would not get hot enough to turn into a real star with internal nuclear reactions, but it would give off heat.

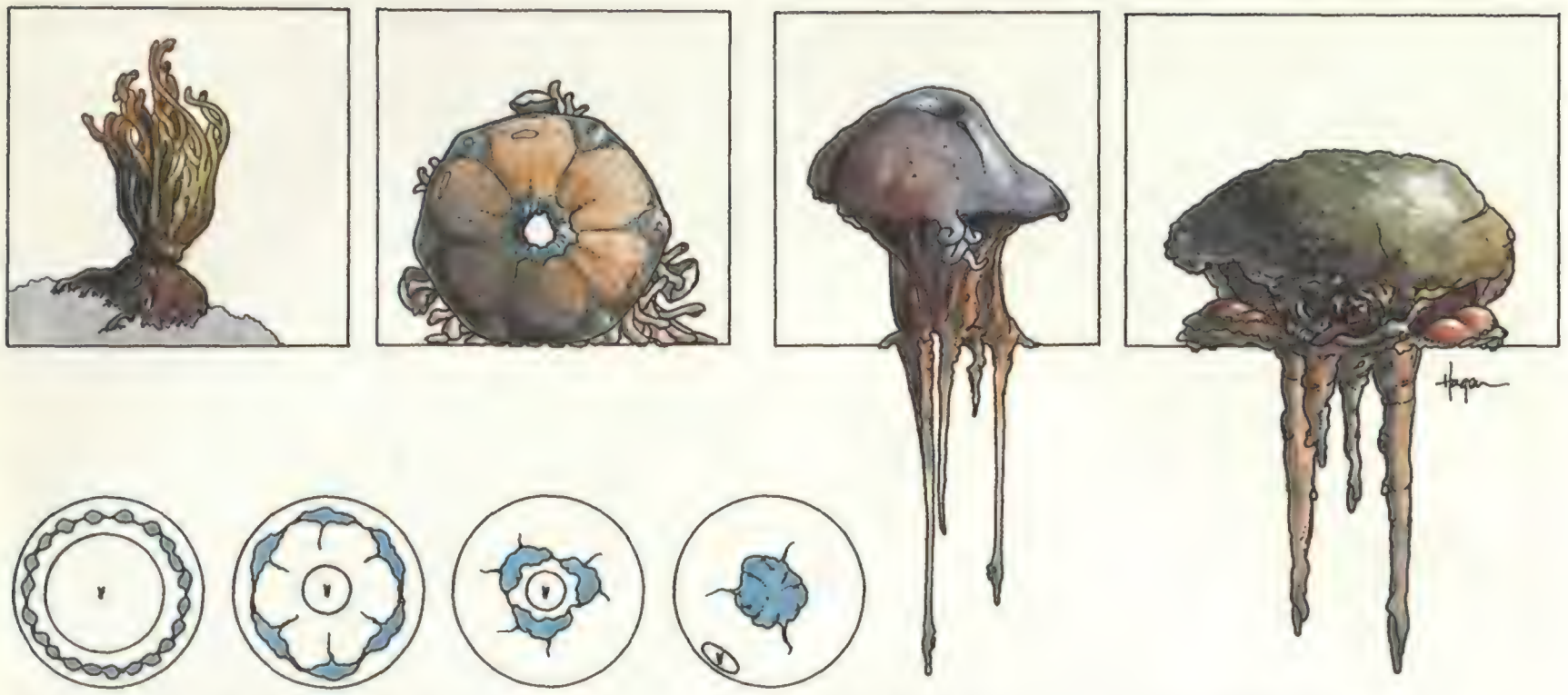
Now we put our own world (slightly smaller than Earth) into orbit around this secondary, heat-radiating gas giant. Our world is thus actually a moon of this super-Jupiter planet. Astronomically inclined readers will recognize this arrangement as a variant of the solar system. Visualize the sun, Jupiter and Jupiter's largest moon, Ganymede, larger than the planet Mercury (SMITHSONIAN, January 1980). Now reduce the sun slightly while scaling up Jupiter and Ganymede, and you have our invented star-planet-satellite system.

In keeping with Jupiter's satellite system, we assumed that the equators and orbit of our world and the gas giant all lie in the same plane, and we assumed that our world kept one face toward the gas giant (just as our "real" moon keeps one face toward us). By choosing the distance from the planet to the star and the moon to the planet, we came up with a most interesting climate for one world: its equator is heated by the star, and the equatorial region facing the gas giant is heated still more by the infrared radiation from the gas giant. As a result, the only temperate regions are two disconnected areas, one at each pole. They are pleasant arctic and antarctic habitats, in contrast to the torrid deserts and oceans which (according to our maps) characterize the lower latitudes.

Now our creations were becoming tangible to us, and our writers could hardly wait for them to have names. Larry Niven announced that our world was Thraxisp, and the gas giant, Wixitap. Why these names? Well, science-fiction writers don't need reasons for everything! Niven did explain that these were human approximations of words from some alien tongue. We came to call Wixitap "Wix" for short.

Soon we were busy compiling other facts about Thraxisp ("Thrax Fax" in our rapidly expanding lingo). Thraxisp, as it turns out, has widespread oceans

William K. Hartmann is a planetary scientist and coauthor of The Grand Tour. *This article is the joint creation of all panel participants.*



At the north pole the primitive reef-building "Tessep" at left evolved into the intelligent, mineral-eating "Tunnek" at right. Lower sequence shows how neurons concentrated into a brain as the organism evolved through the same four stages. Superb physicists and chemists, they are sedentary.

and an atmosphere similar to Earth's. Because it is smaller and poorer in heavy radioactive atoms than Earth, Thraxisp did not accumulate as much compressive or radioactive internal heat as Earth, and thus lacks Earth's active geology. Continental plates do not drift, and the surface is not crumpled by massive mountain chains that arise from plates that have collided. Therefore, the surface retains huge craters—the impact scars of meteoritic debris. The landscape is like that of a flooded Mercury, moon or Mars. Rims of huge multiringed basins form landmasses that include beautiful arc-shaped island archipelagos.

By now the hotel room had taken on a workshop air. Our materials cluttered the tables. Hagen and Ortega were busy at drawing boards while Dixon and I began paintings of Thraxisp. The hiss of our airbrushes was punctuated by the clatter of Preuss' typewriter as he worked on the daily bulletin that announced our "discoveries." Hot lights glared from the side of the room where Costa was demonstrating the stop-motion process to a group of enthusiastic youngsters. On the stage area, amid drop cloths, clay and chalkboards, Sternbach was constructing the first globe of Thraxisp. He transferred landmasses from my rough Mercator map to a 12-inch acrylic sphere, using a modeling compound to get realistic relief. Niven was deep in thought, wreathed in pipe smoke and surrounded by notes written in his rapid hand. Periodically he popped up with a new idea.

The next stage in our project was to let life-forms evolve within the environments we had established. We split into teams. Sternbach, Dixon and I concentrated on refining the globe and views of Thraxisp from space. Preuss worked on evolution at the somewhat arid north-polar continent, while Niven did the same for the smaller, rainy south-polar continent. Hagen, Ortega and Costa bounced back and forth between poles, brainstorming about life-forms and sketching the appearance of different species at different evolutionary stages.

Just as Australia and South America produced different types of mammals because they were disconnected throughout the period of mammal evolution, the two temperate poles of Thraxisp produced different life-forms because they were isolated during the full duration of evolution on land. Most closely resembling Earth's biological community was life in the moist south-polar regions. There, from marine predators resembling our flying fish, evolved the free-flying "Vollek," equipped with powerful grasping forelimbs and interlocking lateral-fin wings. The humid southern air facilitated their transition from aquatic animals into true air breathers, which populated the southern forests as aerial and arboreal species.

Over millions of years, these Vollek fliers evolved to produce the intelligent bipedal "Erret" (pp. 88-89). Predators which moved from the air to the ground, the Erret are curious, active and adventurous (albeit somewhat "lizardish" by our standards). They have a highly developed sense of spatial relationships, geometry and mathematics. In a metal-poor environment, they have developed a technology emphasizing sophisticated use

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Do-it-yourself world comes to life

of woods, polymers, adhesives and ceramics. They have built machines including aircraft, thus returning to the sky their ancestors knew.

Imagine their surprise when their explorations finally took them beyond the hostile equatorial zone to the north-polar regions, where they encountered life and intelligence of a totally unfamiliar nature! Here, descendents of reef-building invertebrates had evolved into many advanced organisms. Certain early, tentacled, disklike forms rolled up stream beds while larger forms developed hard exoskeletons and sank probing appendages deep into the ground, seeking hydrocarbons that could be broken down by internal bacteria and metabolized.

Of the more advanced organisms, only a group known to us as the "Tunnek" developed intelligence (p. 92). They utilized a unique sonar system to locate underground mineral deposits. In contrast to the Erret, the Tunnek are sedentary, introspective beings. They are somewhat mushroom-shaped, visually and philosophically alien to the adventurous explorers from the south. Their attention is directed downward because they derive nourishment by ruminating among minerals in the soil. The Tunnek are stolid beasts. We believe it took some time after the first contact between the Erret and the Tunnek for either race to recognize that the other was intelligent.

In the present era, the two species are establishing an almost symbiotic relationship. The Tunnek have a more advanced knowledge of the metallic mineralogy of the planet, while the Erret help them reach new regions to exploit. In turn, the Erret are rapidly developing their first metal-based technology, and are pondering the possibility of space flight.

Who knows what may happen next? Who knows what pictures, stories or films may lurk in the unfathomable minds of our panelists? A world like Thraxisp, somewhere among the thousands of billions of known star systems, is not improbable. If Thraxisp is not improbable, then its life-forms are plausible.

But they aren't real.

So why bother?

As I wandered around the balcony of our convention hotel and looked down into the lobby, I saw our costumed conventioneers: a tall blue alien with wings; several dragons; Lord Vader and a number of imperial storm troopers; a remote-controlled robot. It looked like a trade pavilion on a mercantile planet at the end of some galactic spiral arm. One woman lamented: "Well, on Monday it's back to unreality."

In the hotel restaurant I wondered what were the thoughts of four worn-looking businessmen at the next table, intensely discussing some $30,000 sale, when a seven-foot Wookie walked by, complete with sandals, supply belt and crossbow. Then I thought that perhaps it's a good thing to enrich our lives with a little awareness of the fantastic—the fantastic which may be all around us. After all, we don't live just in Los Angeles, St. Louis or New York. We live in a mighty galaxy with 200 billion stars and who knows how many planets. It stretches into the past and future. Other galaxies surround us. We need to have a time-lapse consciousness of the history and breadth of our surroundings. We are like little microbes living for our few hours on an unfolding flower in a whole garden of blossoming buds. We need to imagine, once in a while, all of the other flowers around us.

Ceramicist Joel Hagen puts finishing touches on one of his "fossils" of alien life-forms.

Gas-giant Wix looms large in the Thraxisp sky just after sunset. Impact crater lies on the horizon.

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viewable symbols on an underwater screen. Dolphin responses are analyzed through a PDP/11. A second Apple monitors and analyzes data from all phases of the experiment.

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Douglas W. Deedrick

Magnified 400 times, the microscopic structure of a downy feather recovered from the engine of a Boeing 747 last June reveals it to be from a barn owl. The engine maker, Pratt & Whitney, sought identification.

Roxie Laybourne and Douglas Deedrick, an agent who "learned feathers," share a microscope at FBI lab.

By Mike Lipske

To down detective Roxie Laybourne, a feather's the clue

This researcher can unravel a mystery from bits of fluff found in a jet engine or on the clothes of a criminal suspect

Photographs by Yoichi R. Okamoto

On her way to becoming this country's absolute last word on the identification of feathers, Roxie C. Laybourne has not hewn to the tidy path. The clutter on her desk at the Smithsonian Institution stands a solid six inches deep at the left rear corner and slopes to a depth of two inches near the right front. From mountain to plain spreads a layered mass of routing envelopes, official letters, scientific texts, seminar proceedings and scattered scraps of paper. One small brown-and-white feather, pennant on a sinking ship, pokes up from the pile. "It's from Thailand, but I haven't worked it out," she says of the feather.

On an adjacent table are more papers, more books, her black microscope, a plastic bread bag filled with eagle feathers, as well as several small glass bottles containing charred bits of down floating in Ivory Snow and water.

Feathers, ones in need of a name, flow steadily to Mrs. Laybourne's tiny office in the National Museum of Natural History. Aircraft engineers, designing planes to withstand collisions with birds, send her tiny shreds of feathers scraped from jet engines. An archae-

Douglas W. Deedrick

Downy part of a feather, found on clothing of arson suspect in a warehouse fire, is here blown up just 35 times. The warehouse stored feathers: Laybourne and Deedrick made identification for the FBI.

ologist in New Mexico drills a hole in a 500-year-old sealed pot, plucks bright yellow and orange feathers from inside, and mails them to Mrs. Laybourne in Washington. Feathers come routinely from field agents of the U.S. Fish and Wildlife Service (FWS) and the Federal Bureau of Investigation.

A systematic ornithologist and research associate in the Smithsonian's Division of Birds, Mrs. Laybourne is also a part-time zoologist with the Division of Law Enforcement of the FWS. Short, square-faced, she speaks in a thick Carolina drawl, and punctuates her conversation with rolling hand gestures.

Combing quickly through the crammed drawers of her desk, she pulls out plastic bags holding bird remains. From one, she dumps a few bits of mangled fluff recovered from an airplane engine following a bird strike in Texas last year. Reading the scant evidence, she has conjured up a female American kestrel.

"This strike occurred in Turkey," she says of the next one, a grayish wing and one severed foot, sent by the U.S. Air Force. "Golden plover."

On a microscope slide are mounted a few tiny, white strands of down: "I knew for certain it was a *Buteo* (a genus of soaring hawks) . It turned out to be a red-tailed hawk. *Probably* a red-tailed hawk. You have to be careful not to overstep your bounds."

"Remarkable woman," says Douglas Sutton, at the time a Smithsonian post-doctoral fellow for whom she was identifying feathers found at archaeological sites in Labrador. "That work she does with feathers, I've never seen anyone do. Bright as hell. Feathers, for God's sake! That's a very difficult thing."

"I grew up as an ornithologist," says Mrs. Laybourne. "I've been interested in natural history and birds ever since I could walk. You get used to thinking of birds in certain terms. People who band birds know the bird from handling it, or seeing it in the field. I know birds better when they're dead."

She was born in Fayetteville, North Carolina. The year, she says, is not "pertinent." Her parents moved soon after to Farmville, in Pitt County. "It was a small town. You had plenty of fields and woods to roam in. Most people don't. But I did. I liked to hunt and fish."

She was graduated in 1932 from Meredith College

If it's a feather, see Roxie Laybourne

Mrs. Laybourne checks identity of feathers in a headband from Ecuador for a Smithsonian exhibit.

in Raleigh, with a degree in science and mathematics, and went on to work at the North Carolina State Museum of Natural History, where she learned taxidermy and spent summers at the federal fisheries station in Beaufort, collecting birds, fish and other specimens for the museum and puzzling out problems in shark identification. Graduate study in zoology at North Carolina State University was followed by a master's degree in botany from George Washington University in Washington, D.C.

She came to work at the Smithsonian in June 1944, intending to leave Washington after a year. But by November 1946, she had transferred to a job at the Fish and Wildlife Service, where she has worked since, for many years with the Bird and Mammal Laboratories, now with the Division of Law Enforcement. As a Smithsonian research associate, she has an office and access to the vast collection of bird skins and skeletons in the Museum of Natural History. "You have all the privileges of an employee but no salary," she explains.

It was not until 1960 that Roxie Laybourne's peculiar knack for identifying feathers began to reveal itself. On October 4 of that year a turboprop Lockheed Electra took off from Boston's Logan Airport, burst into flames and plunged into Winthrop Bay with 72 aboard. Eight passengers and two crew members survived the 47-second flight—cut short by a flock of birds sucked into the Electra's engines.

The Federal Aviation Administration turned to Mrs. Laybourne and John W. Aldrich, her supervisor at the time, for help in identifying fragments taken from the engines. "That was our first case," remembers Aldrich, also a research associate in the Division of Birds. "And it was a tough one. They were all mangled. Finally we did find one whole starling feather."

The Boston crash caused an immediate scurrying in the industry, and a feeling that the effects of birds on airplanes was something that had to be understood. "It was one of the first that ever happened with birds," said one industry employee. "Lives were lost and a plane came down out of the sky."

The aircraft industry prefers to remain quiet about its bird strike research. "People get hysterical when we take dead pigeons and throw them into running engines," says a Pratt & Whitney public relations man. "And we do."

Al Weaver, a Pratt & Whitney engineer who has been sending Mrs. Laybourne feather fragments for ten years, says he is not especially curious about the species or the sex of birds that fly into engines. But he does want to know the size and if it is a flocking bird,

Mike Lipske is a Washington, D.C., free-lance writer who specializes in the area of natural history.
This article is his first appearance in SMITHSONIAN.

like a gull, "or a loner like a hawk." Which is where Roxie Laybourne becomes a good person to know.

"Feathers," she points out, "will take a lot of beating. They're pretty tough. That's one reason you can identify them after they go through something, like a jet aircraft engine, and they're all chewed up."

The first thing she does with the chewed-up feathers that Weaver and other engineers send to her is wash them. "You cannot identify dirty feathers." After the feather fragments have been soaked in soapy liquid, rinsed and dried, she puts one on a slide and under her microscope.

She is a student of the fine, diagnostic structures on the barbules of down. These barbules are microscopic parts of a feather that extend from an individual barb. The barbs, in turn, are tiny featherlets, some small as an eyelash, that grow from the quill and make up the soft vane of a feather. In a six-inch feather taken from the wing of a city pigeon, about 1,200 barbs and about 990,000 barbules make up the vane. Here, in that 990,000th part of a feather, is where the scientist goes to work.

Feathers stand up to jets

She uses down for her investigations because the microscopic structures on downy feathers vary less than do similar structures on the barbs of flight feathers. Also, the downy feathers, which are more flexible, stand up better to the sort of wear and tear that comes of being inhaled by a jet engine.

Why birds have evolved microscopic trademarks in their feathers is something Mrs. Laybourne cannot say: "All I know is they have it." The microscopic process pins identification down to family in most cases, but Mrs. Laybourne does not attempt to identify the particular species through her microscope. Instead, once she has determined the family of birds that a fluff of down has come from, she takes accompanying feather fragments from the tidbits that have been sent to her and compares them with feathers from specimens in the Smithsonian's skin collection.

She is alert to other corroborative clues when doing feather identifications. A while back, for example, Pratt & Whitney's Al Weaver questioned a report from her. An Air France jet at Houston had suffered a bird strike. The material was sent to Mrs. Laybourne, and she declared that the bird was an immature laughing gull, a New World species. Because the jet had taken off earlier from Copenhagen, however, Weaver wondered whether she might be mistaken, and might the gull feathers be from some European species. The scientist went back to her fragments for another look.

"Well, in the material that I had left," she says, "was this little piece of black material. When I softened it

In the spirit room, where whole bird carcasses are preserved, she washes some feathers in a beaker.

Gill Schultz is all concentration as she skins a bird in Mrs. Laybourne's class at Museum of Natural History.

The scientist holds five specimens from Museum's bird-skin collection. It is her research library.

up, I could see that it was a tragus, part of the ear of a bat." I ask her how she could tell that the black material, an exceedingly tiny scrap, came not only from a bat but from a bat's ear. "Well, I *knew* that," she responds, with a hint of patience waning.

Just as birds can be identified by their plumage, bats can often be distinguished by the shapes of the tragus. She suspected that her bit of ear had come from a free-tailed bat, a kind common in the Southwest. She and a museum mammalogist confirmed the identification against the Smithsonian's bat collection. Since the remains were recovered from the same part of the engine, the bat strike suggested that the bird strike had occurred near Houston, not in Copenhagen. And, like an incidental bit of evidence in a court trial, the bat identification satisfied Weaver that his bird was a laughing gull.

Mrs. Laybourne says the only thing special about her method is that she has worked at it so hard, examining thousands upon thousands of feathers and committing their trademarks to memory during the 21 years she has studied the structure of down. But even her doggedness, and her memory for minute variation, would be insufficient if she did not have access to the reference library that is the Smithsonian's collection of bird skins—"somewhere approaching half a million specimens," according to George Watson, curator of birds.

Stored in drawers in a complex of cases on the sixth floor of the Natural History Museum's East Wing (p. 105), the collection ranks first for North American species of birds, but trails the American Museum of Natural History, in New York City, for birds of the world. Possibly a third of the Smithsonian's skins were collected for the old Biological Survey of the Department of Agriculture, which became today's Fish and Wildlife Service. The Museum's array of bird skeletons and preserved specimens is preeminent.

Feather identification and the FBI

The resource is often tapped by "outsiders" who, in turn, add their own knowledge. It was, for example, an FBI microscopist who helped Mrs. Laybourne come up with a permanent slide mounting medium for use in her feather studies and, more important, eased her burden of routine identifications. Douglas Deedrick, a 32-year-old agent working with hair and fibers in the microscopic analysis unit of the FBI laboratory in Washington, met Mrs. Laybourne in early 1978. Deedrick showed an interest in her work and she, who had been identifying feathers for the FBI for 18 years, saw in the young agent the answer to her wish that someone at the Bureau would "learn feathers." She had taken on as many as a dozen cases a year for the FBI, handling feather evidence in crimes such as robbery, kidnapping and murder. Criminal convictions seldom hinge on feather identifications. But having a scientist testify that a feather fragment adhering to a suspect's knife matches the filling in the victim's down-lined jacket cannot hurt the government's case.

The carefully dressed-and-pressed FBI man and the white-coated research scientist are an unlikely pair of crime fighters. Yet she speaks of Deedrick as a favored nephew, and the agent is effusive in his praise of her: "She's a stand-up person. She never sits down. She can walk twice as fast as I can. Her memory is sharp. She can associate all the different areas she's worked in—botany and birds and animals—and put it all together. She can take something most people wouldn't find that interesting and put herself into it. She's a true scientist."

To know birds, one must take them apart. When Deedrick showed an interest in learning the scientist's microscopic method, she invited him to attend her weekly skinning classes at the Museum. The FBI microscopist, an artist who works at the World Bank, high school students in love with birds, a National

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If it's a feather, see Roxie Laybourne

Zoo employee who donates pigeons trapped on the grounds there: all have come to Laybourne's Tuesday evening classes in the Museum's Naturalist Center. To the gentle action of scalpels slitting avian abdomens and the snip of scissors on muscle or bone, the students gather to learn the craft of separating a bird from its feathered skin.

"Oooh, fat," declares Hilary Binda, a high school student, as she makes an incision down a starling's belly. A moment later she says, "I love doing it. I learn identification better. You know the bird forever once you've skinned it. If you can once get over being grossed out."

Leaning over Hilary's shoulder, Mrs. Laybourne offers advice and lends a hand with a pair of scissors: "If you just cut that bone and that muscle, then the weight of the body will clean it. But you've got to know where the head of that bone is."

Mrs. Laybourne lives on a farm, "not a real farm," she insists, in Virginia. Home to a cat, a Labrador and two Morgan horses, the farm also once sheltered a handsome rooster. Though wandering dogs killed the rooster, his partial skin, golden hackles intact, lies in a cabinet in the evidence room at the FWS Division of Law Enforcement, keeping company with stuffed owls, kestrels and a bald eagle.

The windowless room is also strewn with furs of spotted cats, carved ivory figurines and the large shell of a hawksbill sea turtle. A crocodile skin sits folded in a corner, and one long elephant tusk has been propped against a metal cabinet. All these items are contraband, seized by the Fish and Wildlife Service.

Mrs. Laybourne is praised by FWS agents in Washington and the field. Though she now concentrates on feathers, she has in the past identified fur coats, confiscated in the belief that they were made from endangered cats, and alligator handbags, sent on the assumption that the gator had been illegally killed.

"I'm a zoologist," she says. "Even though my specialty is in birds, and my superspecialty is in feathers, it doesn't mean I don't know anything else."

One case involved Terry Grosz, now a special agent-in-charge in Denver, who in the late 1970s was an endangered-species desk officer in Washington. Much of his work consisted of taking sea turtle or alligator parts, or bits of fur, claws and other evidence sent "from chaps in the field," and having it identified by specialists such as Roxie Laybourne.

"One case I gave her, she surprised the hell out of me. We had an individual come in through the port of New Orleans. He had what he called tapir teeth in his pocket. [Tapirs are hooved, tropical mammals related to the rhinoceros.] They were sent to Washington for identification and, lo and behold, they came back '*Felis*, species unknown'."

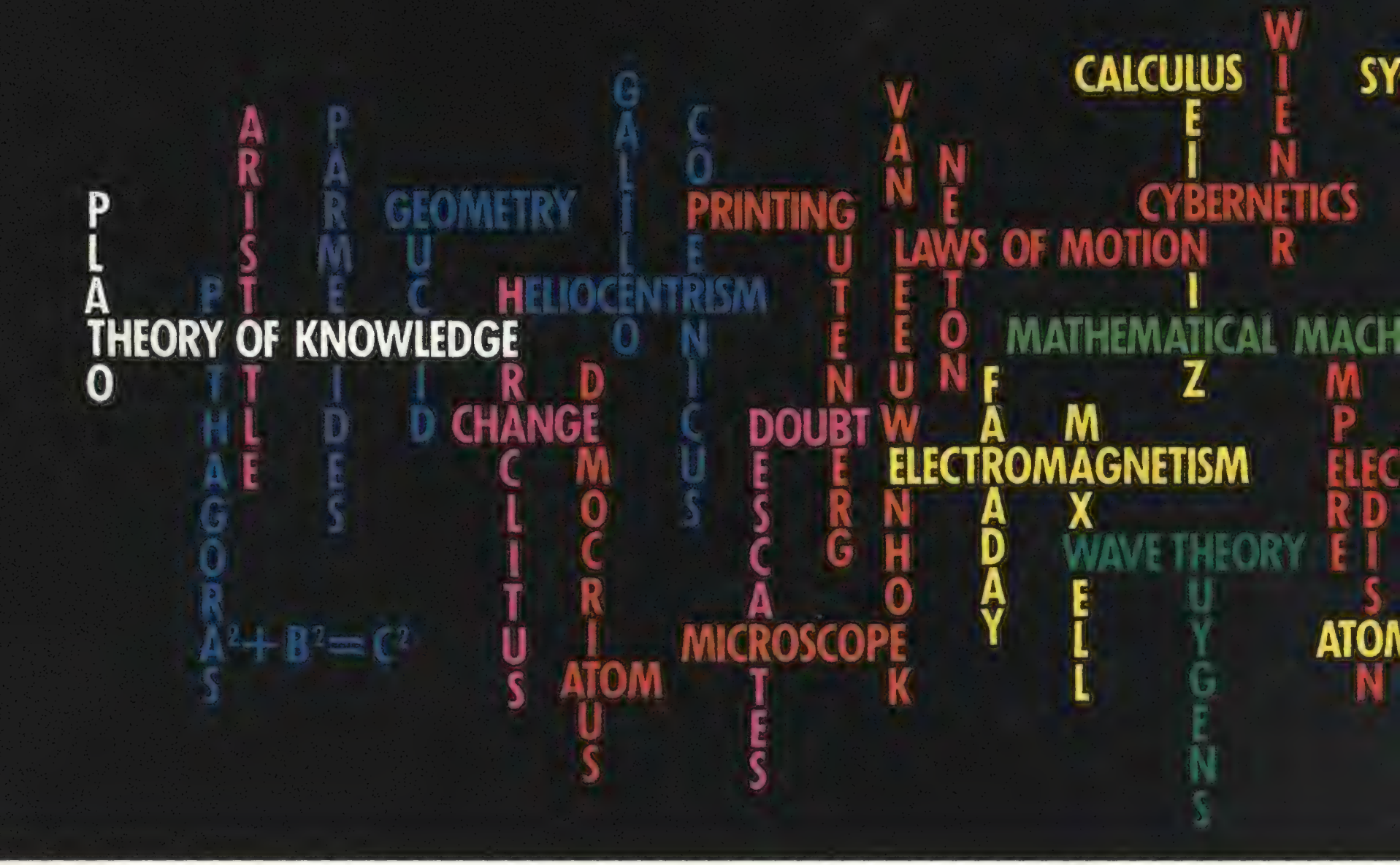
Knowing that the teeth came from an unknown species of wild cat was a beginning, but not the stuff of which endangered species prosecutions are made. Grosz next went to "one of the best mammalogists in the country." The agent says he was told that determining the species of cat was probably not possible.

At a loss, Grosz turned to Mrs. Laybourne, who took the teeth and vanished into the corridors of the Museum of Natural History. Two weeks later she reappeared, saying the teeth were a jaguar's and she could prove it. Grosz says he next brought the mammalogist and the ornithologist together. Not long after, the mammalogist came back, says Grosz, with a signed statement that the teeth were indeed from *Felis onca*, the jaguar.

"Nothing stops her," Grosz says of Mrs. Laybourne. "When she says something she's kind of like a clipper ship. She sets sail into the wind and she stays there." Laybourne laughs off the tale of the "tapir" teeth. "There's a lot of things I can do." There is little of pretense here.

Thirty-seven years into her career working at the Museum of Natural History, and 21 years into her research on the structure of down, she has no intention of retiring to Virginia. "I could go out to my farm and pull up weeds. But who wants to do that all the time? The weeds will come back. You never win that battle. This field, I'm just beginning to get to where I can go somewhere with it. I've just got enough background now to begin learning. You have to know so much to begin asking yourself questions. I figure in 20 years I might learn something."

A small part of Smithsonian collection. Beth Sabo, center, is learning art of feather identification.



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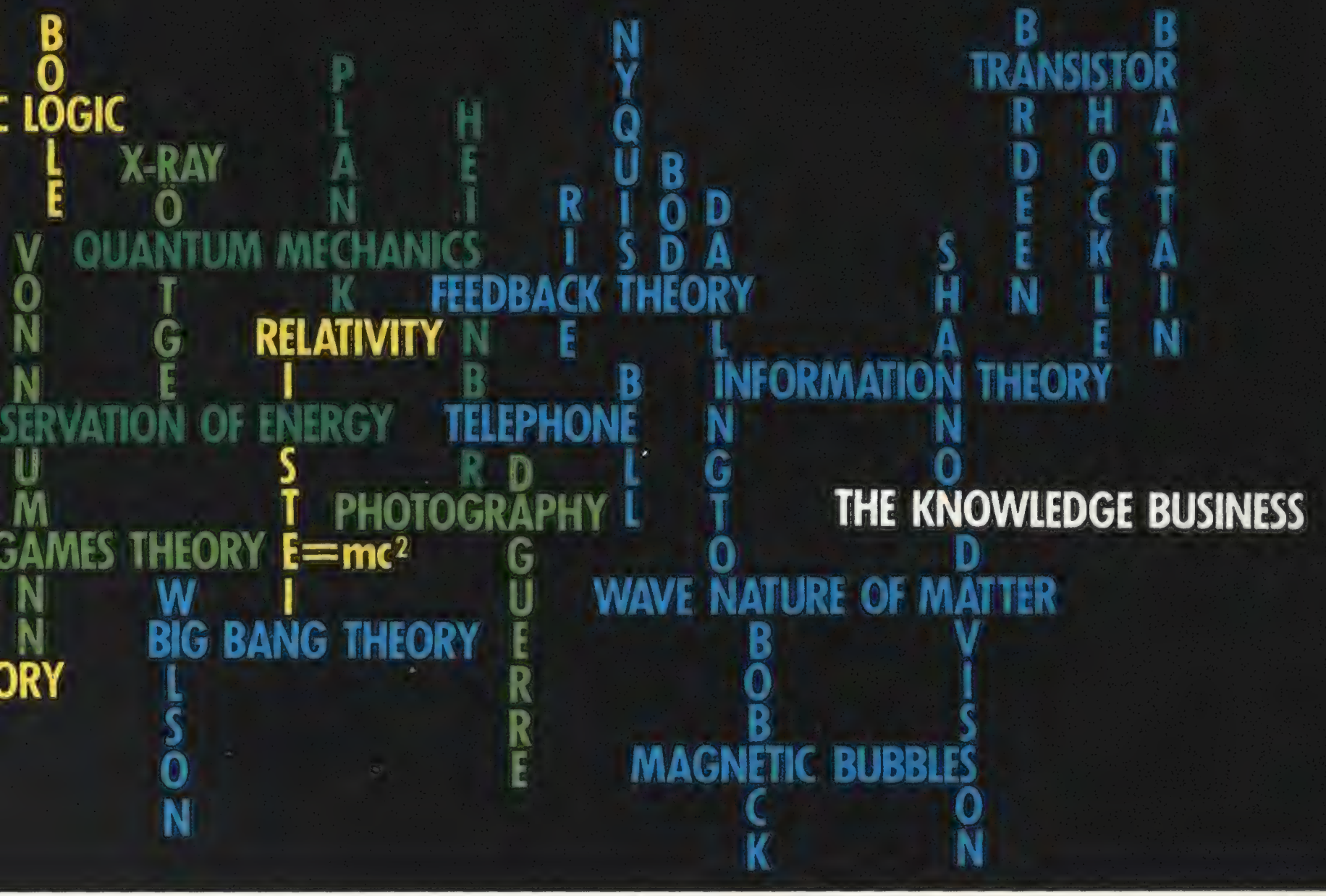

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University Art Museum, Berkeley

By Paul J. Karlstrom

The short, hard, and tragic life of Henry Alexander

Almost a century after his suicide at age 35, a legacy of realistic but mysterious paintings is being discovered by critics and historians

"Despondent because of his inability to earn a living by his brush, a padlock barring him from his studio in which were his prized pictures as well as his bed, penniless and friendless, Henry Alexander, a young American painter . . . gave up the struggle against adverse fate, and with a draught of carbolic acid ended his troubles early this morning." [Obituary, *San Francisco Examiner*, May 16, 1894]

Henry Alexander's life provides yet another tragic example of the late 19th-century American artist, trained in Europe, who returned with great expectations that his country was not prepared to fulfill. Unable to find a receptive audience for his work, Alexander committed suicide at age 35 in a New York hotel room several blocks from the famous Greenwich Village Tenth Street Studio building in which he had lived and painted for seven years under the oppressive burdens of declining health and growing despair.

Part of the explanation for Alexander's unhappy end stems from the art itself: a conservative realistic style and choice of unsophisticated subject matter, mainly scenes drawn from everyday life, a mode that was fast losing out to the ascendancy of the brighter and more cosmopolitan Impressionist movement.

Alexander nonetheless was among the most interest-

In *The Lost Genius*, Alexander devoted loving care not only to the old cobbler, but to each object.

All, M. H. de Young Memorial Museum

Tradition of European and American realism is masterfully employed in Alexander's *Exact Weight.*

Highly decorative *Yum-Yum,* from *The Mikado,* is one of few paintings

ing of late 19th-century American artists. He was described in the *New York Herald* as one of the creators of the "modern school of art," a forgivable, if puzzling, exaggeration, and his paintings were included in exhibitions at the National Academy of Design, the Chicago World's Columbian Exposition of 1893, and the California Midwinter Fair in San Francisco the following year. Shortly before he departed from San Francisco in 1887 to establish himself in New York, he was awarded the first prize gold medal at the California State Agricultural Society Fair. The New York as well as the San Francisco press recorded his various comings and goings and generally described his work in laudatory terms.

Given the quality and appeal of his art, it is perplexing that up to now he has received so little attention. Until recently he was usually overlooked in surveys of American art, and there have been only three retrospectives of his work, all in San Francisco. In 1937 there was a display at Gumps' Art Gallery, followed three years later by an exhibition of ten paintings at the San Francisco Museum of Art. Then, in 1973, curator William Elsner organized at the M. H. de Young Memorial Museum a retrospective that consisted of what at that time was believed to be Alexander's complete extant oeuvre, only 20 paintings. Subsequently, at least ten "lost" Alexander works have come to light. Just last year, a group of seven paintings was donated to the de Young Museum by the estate of the Alexander family physician.

In 1906 the Alexander family assembled the greater body of the artist's unsold works for a major retrospective. Stored in a warehouse on Sansome Street, they were consumed by fire following the San Francisco earthquake. Fortunately, however, this small group of fewer than 30 authentic works survives, from which Henry Alexander's special contribution to American art may be judged.

Almost nothing is known about Alexander's short life. It is as if a malevolent agent were conspiring to ensure erasure of the artist's posthumous reputation. There is confusion as to the date of his birth and even that of his death: his headstone at the Jewish cemetery Portals of Eternity in Colma, San Francisco's suburban necropolis, gives the year of death incorrectly as 1895 (rather than 1894) and no birth date at all. Fortunately, a researcher at the Fine Arts Museums of San Francisco has accumulated biographical data from a wide variety of local sources. In an unpublished paper (on microfilm at the Archives of American Art, Smithsonian Institution), Lois K. Gordon has brought together a skeletal outline of Henry Alexander's life.

The author is West Coast Area Director of The Archives of American Art. He wrote on the work of Louis Eilshemius, SMITHSONIAN, *November 1978.*

we have of artist's work reflecting his interest in Oriental subjects.

Alexander's fascination with laboratories, shops and offices is apparent in detailed *The First Lesson*.

Still, we have only four or five reliable dates upon which to hang Alexander's entire career:

From this scarcity of information, his basic "biography" may be presented in a single paragraph. The second of five children of a Jewish immigrant family from Eastern Europe, Henry Alexander was born in San Francisco about 1860. His death certificate gives his date of birth as 1859, but the 1880 San Francisco census lists him as 19 years old, which would mean he was born in 1861. Other sources record 1860 and 1862. Around 1872 to 1873 he studied with Toby Rosenthal at the California School of Design before leaving a year or two later for prolonged study in Munich. The first definite date we have is his arrival in New York in 1883 and subsequent return to San Francisco, where he maintained studios in the financial district for about four years. On April 15, 1887, he sailed by way of Panama for New York City where, seven years later, he took his own life. Most of what we know about the artist appears in the newspaper obituaries reporting his suicide. All that we have today to bring Alexander the man to life is the handful of wonderful paintings he left behind.

And these pictures, with their peculiarly enigmatic qualities, seem to plead for interpretation along biographical or even psychological lines.

An untitled painting, done during Alexander's last years and known only from a photograph, is unquestionably a self-portrait (p. 116). Seated in his humble room, the despondent and poverty-stricken artist contemplates a hole in the shoe that he holds in his hand. The walking cane leaning against the windowsill had become an essential fixture in Alexander's existence and, along with the shoe, another symbol of his difficulties. His New York neighbor, the painter William Merritt Chase, remarked that the last time he saw Alexander he was ill, "complaining that his legs and feet pained him continually."

Admittedly, the subjects, style, and even quiet mood that Alexander's paintings evoke are far from unique in painting of the period. Contemplative reverie was typical of one group of "cosmopolitan" painters, especially in America.

Some of these same figurative and genre artists also, on occasion, painted craftsmen and workers engaged in the routine activities of their trade. At this point, they participated in the earlier, more robust and democratic tradition of William Sidney Mount, George Caleb Bingham and Richard Caton Woodville.

Of all pre-Civil War genre painters, Woodville provides the most direct line to Alexander and his contemporaries. Both artists were German-trained and their work naturally displays typical German genre qualities: proliferation of detail, subdued tonality, and emphasis on imitative accuracy and technical skill.

Humble as the subjects of Woodville's followers, in-

cluding Alexander, may appear in comparison with the prevalent scenes of upper-class leisure, their representation almost without exception was dignified. Basic American democratic attitudes seemed to preclude the patronizing, quaint treatment often seen in European (especially German) renditions of picturesque peasant life.

At least one observer has claimed that Alexander's somewhat eccentric subjects actually remove him from the genre painting category. If so, he was not alone: other American artists were also fascinated by technical skills and specialized activities that represented the national "genius" for invention and creative labor. After all, American soil nurtured the renowned artist-inventors Samuel F. B. Morse and Robert Fulton, not to mention lesser lights whose various inventions included mechanical house shinglers and butter churns!

America also participated importantly in the tradition of medical and scientific iconography that extends back to the Dutch realists and beyond. By far the greatest 19th-century example in the country, if not in the entire world, was Thomas Eakins' *The Gross Clinic* (1875), which has been aptly described as an "allegory of the triumph of American science." The preoccupation with tools and equipment characteristic of scientific genre painting appears in Alexander's *The Exact Weight*, *The First Lesson* and *The Laboratory of Thomas Price*. The artist's painstaking attention to the most minute detail in these paintings reflects not only the French realist tradition of Gérôme and Bonnat, but also an American respect for objective fact that goes back to the Colonial period and John Singleton Copley. Along with Eakins and William Harnett, Alexander remained solidly within his native tradition. Within this context, Alexander's paintings of taxidermists and assayers seem entirely appropriate expressions of the national character.

Alexander made several tentative and somewhat unsuccessful excursions into the rarefied realm of high-fashion genre painting. *The Peacock*, *Teete's House* and *Maid with Tray* depict interiors of wealthy California homes—a privileged world that is at odds with Alexander's more characteristic and important work. They seem to represent an effort on the artist's part to participate in the higher levels of Victorian society and thereby tap the sources of patronage.

Teete's House (p.114), with its conscientiously inventoried accumulation of Victorian furnishings and objets d'art, brings to mind Eastman Johnson's late portrayals of distinguished families comfortably ensconced in parlors that are, above all, testaments to the rewards of wealth, position and business acumen. However, the only animate object in Alexander's version is the small dog perched, also comfortably, on a cushion. The human occupants are, as with the empty parlor of Johnson's famous painting in the Brooklyn Museum, "not at home."

An enigmatic quality that reappears in his art

But as one scrutinizes these Alexanders, several disconcerting details emerge that betray a quality of vision far different from that of Johnson and other chroniclers of Victorian life. Surrounding the dog, but barely discernible at first glance, are the flattened images of another canine on what appears to be the Oriental carpet border and, in front of the couch, an animal-pelt rug with eyes that seem to stare at the viewer. When discovered, these elements somehow contribute to a transformation of the character of an entire room and introduce a mysterious, enigmatic quality that reappears throughout Alexander's art. This separates Alexander from more conventional painters of his type and makes his work more intriguing to us.

What, then, are the qualities in Henry Alexander that transcend the limitations of even the best contemporaneous genre painting? Why do his most successful compositions produce an effect that goes beyond a simple response to a charming (or at least curious) vignette more or less skillfully recorded? The answer lies neither in the subjects, in the anecdote (which, if present at all, is unobtrusive), nor in the accomplished but otherwise unimaginative and conventional technique. Rather, it seems to lie in an extremely subtle and low-keyed—but nonetheless evocative—"otherworldliness."

A palpable sense of mystery vibrates throughout Alexander's offices and shop interiors, wafting in and among the accretions of objects on tables and shelves. While some of the settings, activities and paraphernalia are not, strictly speaking, commonplace or rou-

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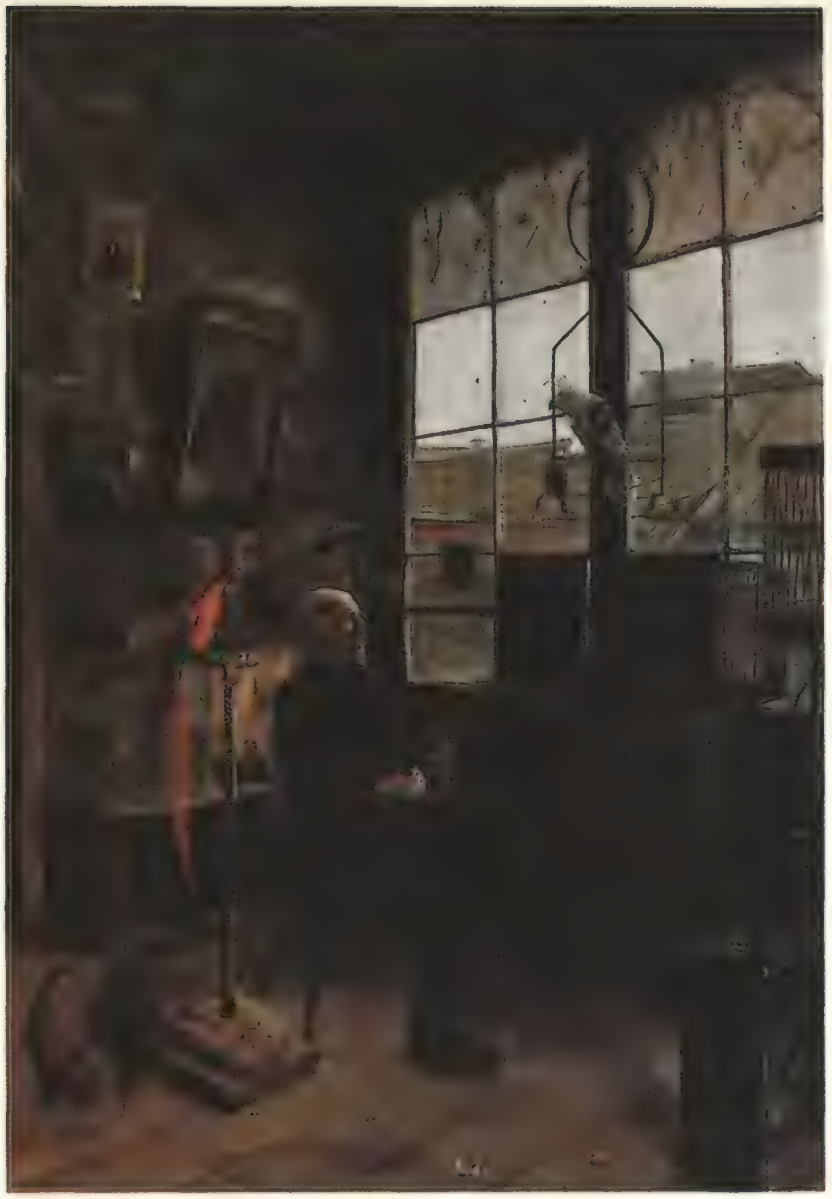
Briefly, Alexander painted homes of the wealthy in an attempt to gain patrons, as in *Teete's House*.



The Oakland Museum

Scene of *The Old Man's Pleasure*, a superbly designed work, was San Francisco's Cobweb Palace.

tine, the artist has exerted little or no effort to present them as exceptional. The presentation is disarmingly straightforward and literal, with no apparent comment or interpretation. Nonetheless, the effect is somehow disturbing.

Alexander's paintings suggest that he is indifferent to the "dramatic" potential inherent in some of his subjects. His interest seems to be in recording activity as if it were ongoing and timeless. But time does not stop entirely in Alexander's rooms: rather, it is slowed down. Typically, there is an elusive quality of "slow motion" in these painted interiors, as if they were to be scanned with barely moving eyes or the head turning slowly. One almost expects to see the "ghosts" of blinking eyes associated with old-fashioned time-exposure photography. Despite a tight, crisp, and deceptively photographic painting technique, the figures give the eerie impression that, if for a moment the viewer looks away, they might move ever so slightly. An examination of two of the artist's finest paintings reveals elements that seem to contribute to the phenomenon.

The Lost Genius (pp. 108-09) displays Alexander's ability to integrate a profusion of details into a controlled overall composition. Soft, pearly light enters the cobbler's shop and dances around the room, picking out details and creating myriad sparkling reflections. Even the old shoes emit a soft glow which, combined with their great number, produces an effect that is not entirely natural. Herein lies one key to Alexander's personal "surrealism": equally intense focus on every detail, including the old man with his violin and the boy at the door, creates a uniformity whereby everything—whether shoe, parrot or leather punch—takes on the same character and importance. Superreality begets unreality.

In this respect, *The Old Man's Pleasure* (above) is more extraordinary. This marvelously conceived and executed picture probably should be regarded as Alexander's masterpiece. Owing in no small part to its perfectly controlled eccentricity within a carefully constructed matrix, it embodies the essential character of Alexander's art. The subject is Abe Warner's Cobweb Palace, a San Francisco waterfront museum and saloon unchanged from the Gold Rush days. The proprietor obviously believed that the resident spiders should be left alone. With plaster falling off the walls and the famous canopy of cobwebs overhead, old Abe himself sits surrounded by his various treasures—paintings, birds, and an assortment of caged creatures including one of the monkeys that ordinarily had the run of the place.

But the most remarkable detail is a transparent

J&B. It whispers.

Smithsonian Institution

Only this photograph is known to exist of what was a self-portrait, in despair, of the artist.

cockatoo perched in front of the window. Everything else is, although somewhat flat, nonetheless solid. If this were an isolated occurrence, it could be satisfactorily explained in several perfectly ordinary ways. But in fact, similar transparency appears in a number of other paintings, *Neglecting Business* and *The First Lesson* among them. It seems unlikely that this "ghost" imagery was anything but intentional. Discovering the artist's purpose is another matter entirely. And what of the birds that appear regularly and prominently? Did birds hold some private iconographical significance for Alexander? We will probably never know.

Little if any of this is evident from a casual examination of Alexander's paintings, which at first seem to convey nothing more nor less than what is depicted. However, the attentive viewer becomes quickly aware of something definitely out of the ordinary and looks again in an attempt to discover just what it is. Certain subtle aberrations and "adjustments" in the rendering of details, hands and faces could perhaps be attributed to deficient drawing. And it must be admitted that occasionally Alexander's work exhibits just such awkwardness. Whatever the explanation, the effect is the creation of a world that, for all its superficial familiarity, is ever so slightly but undeniably removed from our own. It is at this juncture that Henry Alexander's work abandons straightforward genre and joins forces with American imaginative tradition as embodied in the visual poetry of his slightly older contemporary, Albert Pinkham Ryder.

Viewed within the context of an American still-life/genre tradition qualified by the example of European academic naturalism, the sources and influences for Alexander's art come clearly into focus. His basically conservative pictorial tendencies were reinforced by this experience as well as by contact with Toby Rosenthal, Thaddeus Welch and Theodore Wores, fellow Californians working in Munich at the same time. All of these men were able to establish solid reputations for history painting, still-life compositions, and (especially in the case of Theodore Wores) subjects drawn from the colorful and exotic aspects of San Francisco's Chinese community.

Alexander too was praised for his Chinese interiors, including opium dens, most of which are unfortunately among the "lost" paintings. One related subject that remains is a stage set depiction of Yum-Yum in *The Mikado*. This painting, along with his vaguely Art-Nouveau *Peacock*, represents the more fashionably decorative aspect of Alexander's production; it certainly does not fully represent the artist's peculiar and highly individualistic genius as embodied in *The First Lesson* or *The Old Man's Pleasure*.

There is no question that Alexander's paintings, with their period interiors and array of professional equipment, appeal to us as faithful "documents" of late-19th-century American life. Specific buildings, rooms and neighborhoods of San Francisco in the 1880s are not only recorded but often conscientiously identified. But behind this topographical detail there lurks the crucial element of eccentricity that we have already noted, which infuses straightforward realism and transforms the content of the work itself. This is the all-important point at which Alexander's personal vision intervenes to separate his work from conventional genre. It is also the point that establishes its true meaning and significance.

So, while Alexander exemplifies an important American realist tradition, and while he, like other painters, struggled to keep in step with rapidly shifting American taste, he seems exceptional in both his isolation and his individuality. In this respect, he and his art fit more comfortably with the small group of late-19th-century American eccentric visionaries than with the conservative genre painters whose subjects and technique he so brilliantly employed. Though we understand Alexander's rightful position in the history of his country's art, the question remains as to how he arrived there. Until a mythical journal or packet of letters is uncovered that throws some light on the biographical and psychological reasons for his apparent insecurity, discontent and isolation, one of the period's most intriguing artists will continue to be largely an enigma.

Alexander's technical virtuosity is displayed in *Peacock*, another foray into high-fashion painting.

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Waving its mouth tube like an elephant's trunk, a conch moves along sea bottom searching for food.

By Carrol B. Fleming

Snail pays dearly for its tasty meat and beautiful shell

Conchs are a mainstay of the Caribbean diet; their shells are valued as tools, decorations, even as powerful trumpets

A large marine snail pokes two tentacles from the hood of its heavy shell, each stalk ending in a round yellow eye. Between these glittering eyes is another protrusion, the snout-mouth. A mottled brown foot follows, its fleshy curve terminating in a horny sickle called the operculum. The animal extends this fingernail-like crescent into the sea floor, contracts its muscular foot, rises and totters for a moment. Then the heavy snail thrusts itself forward in a short leap.

This is not a scene from the latest giant-snail horror movie or a rerun of the primal lagoon. It is a simple action shot of the queen conch in the clear tropical waters where it lives. This hopping, clubfooted snail might be more easily recognized by its extravagant fan shell. The conch shell has been a popular curio since Victorian times and still graces travel ads with the romantic lure of its pearly pink whorls.

The living conch, with its flashy aperture pressed to the sand and its circling spire covered with marine growth, is as unobtrusive as a mossy rock—until it moves. The conch's unusual hopping motion—so different from the liquid glide of most snails—propels it

Seen from above, a queen conch gives no hint of its spectacular underside.

Eyestalks, operculum are visible as a queen conch withdraws into shell.

X ray reveals internal structure of young conch. Lip has not yet formed.

Outer lip of shell thickens until conch dies; spines help anchor it in sand.

forward about half of its body length with each leap. An adult conch may weigh five pounds, and lugging that unwieldy shell in this active mode of travel takes considerable strength and development of the foot.

It is this highly developed foot muscle that makes the conch desirable as food. Beneath the thick dark skin is a sweet white meat not unlike the scallop, but it is so dense and tough that it must be pounded tender with a rock or mallet or pressure-cooked before it can be chewed. Conch, which makes a versatile base for stew, chowder, fritters and salad, has provided high-protein nutrition since primitive times. And it is still highly sought for food throughout its natural habitat, which ranges from Florida, Bermuda and the Bahamas through the Caribbean.

Conchs prefer shallower areas of these tropical and semitropical waters where there is plenty of sunlight to support the grass beds that feed them. They may be found in water so shallow that their spires are exposed, as well as farther out, but usually in no more than 70 feet of water. Even though their abundance in shallower waters has decreased greatly in recent years, conch continue to be of economic importance for both their meat and shells.

A free-lance writer with a specialized interest in sea creatures, Carrol Fleming divides her time between Washington, D.C., and the Caribbean.

It seems that ever since the conch has been eaten, there have also been uses for its shell. Excavations of pre-Columbian villages and shell middens have uncovered gouges, scrapers, primitive knives and axes fashioned from thick pieces of conch shell that were smoothed and then sharpened. On islands without hard igneous rocks, the conch shell sometimes provided the only suitable material for tools.

But all of the uses for the conch shell were not strictly practical. It was made into ceremonial objects and beads for jewelry. And, at some point, people discovered they could create a powerful "trumpet" by grinding away the pointed end of a conch shell, holding it to their lips and blowing.

It is possible that the first conch shell arrived in Europe with members of Christopher Columbus' crews. And if not then, certainly soon afterward. The queen conch was well known to 16th-century naturalists. At that time, the word "conch," which came from the ancient Greek, generally referred to any large marine snail. In the romance languages, it formed the word for "shells" like the Spanish *conchas*. And the study of mollusks and their shells become "conchology." However, after Linnaeus classified the queen conch scientifically as *Strombus gigas* in 1758, the word conch properly referred only to members of the Strombidae family. In general, though, the word is used for any large snail.

Horny sickle at left of foot propels conch; snout and eyestalks are at right.

Looking like some coarse bull's-eye, the eye of a conch gazes over stalk tip.

The conch shell became such a popular curio in Victorian England, with its shell grottoes and fountains, that there was hardly a home without one as a mantelpiece or garden decoration. The shell was also carved into fashionable pink and white cameos, and the small pink "pearl" the conch sometimes produces was also prized for jewelry. The shell was (and still is) used as an ingredient in some fine porcelain.

This impressive shell is secreted by the mantle tissue that produces calcium carbonate as a liquid that hardens quickly into crystals. The interior of the shell—the porcelain pink that makes it so striking—is designed for the comfort of the very soft parts of the animal it shelters. Any roughness here would chafe or rupture the soft tissue within.

In the young conch, the shell is simply twisted spiral upon spiral. Only in adulthood does the animal produce its dramatic flared lip, and then the shell stops enlarging and continues to lay down material in the lip area alone. Thus the older a conch gets—biologists believe they live for about six years—the thicker and heavier the shell. The conch's lopsided shell—the flaring lip develops on only one side—may be a result of the lack of mantle tissue on the other side of the conch's body, or just a clever adaptation that allows the conch more security, the ability to more easily wedge itself in the sand in turbulent water.

The conch's unique foot is the most obvious feature of its visible body parts. Its head portion is indicated by the eyestalks and snout-mouth. The latter is simply a foraging tube with a vertical slit. To eat the sea grass and algae that form the major part of its diet, the conch simply extends this tube to the base of a frond and engulfs it. Pieces of grass more than a foot long have been found in conch stomachs, but they also graze on smaller algae that grow on rocks, dead coral and other plants.

The conch's orange or yellow mantle may also be visible outside the shell. It looks like a snug hood over the foot and fits tightly against the shell. Along with shell making, the mantle takes care of respiration with a feathery comb of gills.

The queen conch generally spawns during the warmer months of the year in a sandy area near the grass beds. After internal fertilization (the male conch has a regenerative penis or verge, which is frequently nibbled off by eels), the female deposits an egg mass.

About five days after the eggs are laid, the future conchs hatch into free-floating larvae called veligers. These tiny, ciliated creatures feed on plankton as they drift with the ocean currents. From the beginning, the veliger has a minute shell area, or protoconch, which will eventually form the adult shell.

After about three weeks of drifting, the veliger larva settles to the bottom. Within three days or so, it loses its ability to swim and develops the muscular foot and

Conchs are too good for their own good

Queen conchs occasionally yield pink "pearls," formed from the same substance as is inner shell.

Conch shells were popular curios in Victorian England, often proudly displayed on the mantelpiece.

Shells have been carved into jewelry for centuries; cameo brooch of Medusa was made about 1830.

Recovered from a prehistoric site at Key Marco, Florida, this conch was used as a hammer or pick.

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Hermit crabs like this one are a chief predator; they simply pull young conchs out of their shells.

snout-mouth that will characterize the conch for life.

As a juvenile, the conch is a smaller version of the adult but lacks the dramatic fan lip. It will grow to about three inches in shell length during its first year of life. A conch of this size is rarely seen, as it spends its days buried in sand or gravel, feeding only at night in an attempt to avoid predators. After two years' growth, the average young conch carries a shell six inches long.

Sexual maturity is reached after about three years. A conch at this time will weigh about two pounds, have an eight-inch shell and provide about half a pound of meat.

That's how a conch develops if it is not eaten by any of a long list of predators. Hermit crabs and stingrays pull the conch from its shell; tulip snails clamber on top of it and eat away. Loggerhead turtles, spiny lobsters and tiger sharks have been known to crunch right through the shell, eat the soft parts and spew out the rest. Conch remains have been found in the stomachs of many kinds of fish. After a conch is two years old, people become its most serious threat.

Because of the growing market for conch meat and the ease with which it can be gathered, Caribbean conch supplies have been greatly depleted in recent years. In places that once had plentiful conch beds in knee-deep water, now the only sign of conch is a pile of shells on the beach. This is especially true near population centers. Demand has increased the price in the past few years, encouraging the overfishing of already dwindling stocks.

Looking to the future, scientists have had promising results raising young conch from eggs in the laboratory where they can be protected during their first three or four months of life. These young conch could be seeded out in their natural environment.

Meanwhile, the conch population is dwindling. Florida has reacted with a daily bag limit of ten (and 20 in possession at any time) on the queen conch. Venezuela has a closed season. The Bahama Islands prohibit the export of fresh or frozen conch meat, but license export of food products containing no more than 40 percent conch. But even with these guidelines, fishermen simply travel farther, dive deeper and return with smaller conch. We can hope the tide will turn before it is too late.

Conchs are becoming scarce in part of the Caribbean; a pile of shells on a Bonaire beach attests their fate.

A boyish-looking Marconi, 22, poses in 1896 with his equipment, just brought to London from Italy.

By Donald G. Schueler

Inventor Marconi: brilliant, dapper, tough to live with

While his wireless communication system ended centuries of isolation for Man, he never learned how to talk to his children

It is August 1924. The Mediterranean town of Viareggio, in central Italy, shimmers like a Turner painting in the light of late afternoon. On the beach, a little girl of six stares wistfully at the *Elettra*, a large steam yacht that rides at anchor in the harbor. She is the owner's youngest child, his favorite; earlier that day he had brought her ashore with him as a special treat, leaving her to build sand castles while he attended to affairs in town. Now the youngster—her name is Gioia, which in Italian means joy or jewel—is hungry and bored. She is not a good swimmer, but the white ship seems only a little distance from shore, easy to reach. Abandoning her pail and shovel, she runs into the sea.

Minutes later, a woman guest aboard the *Elettra* leaves to return to Viareggio. As her skiff approaches port, she notes a small head bobbing in the choppy waters. It is Gioia, exhausted, about to go under. She pulls the child from the sea and heads back to the yacht. There she advances angrily on Gioia's father and thrusts the half-drowned youngster into his arms. He is badly shaken. Until this moment he had utterly forgotten his daughter's existence. He had returned to the ship hours earlier, leaving her behind on the beach the way someone else might leave a cigarette lighter on a café table.

That abashed father was Guglielmo Marconi, the inventor of a practical system of wireless telegraphy and hence a "father" of all subsequent communication by radio waves—a field which now includes everything from radio and television to satellite broadcasting, laser and radar. By 1924 his wireless had already saved thousands of voyagers on the high seas from death by drowning. But Marconi was no ironist; it never would have occurred to him that his daughter had nearly drowned because of a failure in communication that no electronic device could have remedied.

Today Gioia Marconi Braga is a poised, vibrant woman in her 60s (p. 147), mistress of an estate near the New Jersey Palisades. She is also the force behind the Marconi International Fellowship, a foundation which honors inventive and humanitarian achievements in the field of electronic communications, among them those of India's Yash Pal, currently head of the U.N. Conference on the Exploration and Peaceful Uses of Outer Space, and America's Arthur L. Schawlow, who shared a Nobel Prize last year for his work in laser spectroscopy.

Not at all incidentally, the foundation also memorializes the name of Gioia's father. Clearly, she bears him no grudge for his forgetfulness. "Much of the time," she has said, he was "more than absent-minded. He was absent." For Gioia, as well as her brother Giulio and sister Degna, these emotional truancies could be wounding. In a biography of their father, Degna attributes Marconi's abstracted fugues (a pathological condition during which the patient is conscious of his actions but on return to normal has no recollection of them), at least in part to his appointment with "a higher destiny." Concerning his absence on that day in Viareggio, however, Gioia takes a less transcendent view: "I suppose," she shrugs, "there were beautiful women aboard the *Elettra*. There often were."

More than most important persons of this century, Marconi remains the absent man, even though his public career is well documented. In 1895, on his father's estate near Bologna, he developed the prototype of a wireless telegraph when he was only 21. The Italian government was not impressed, so the young entrepreneur traveled to England, where he and his invention found a friendlier reception. Within a half-dozen years, armed with sheer nerve and a messianic belief in his great concept, he scored an amazing number of wins: in dramatically staged demonstrations, he proved the effectiveness of ship-to-shore and ship-to-ship communications, ending forever the isolation

The New Orleans-based author most recently wrote in the December 1981 SMITHSONIAN *about vast Mormon genealogical collections at Salt Lake City.*

At 31, young celebrity Marconi is caricatured in 1905 *Vanity Fair* by famed artist, "Spy."

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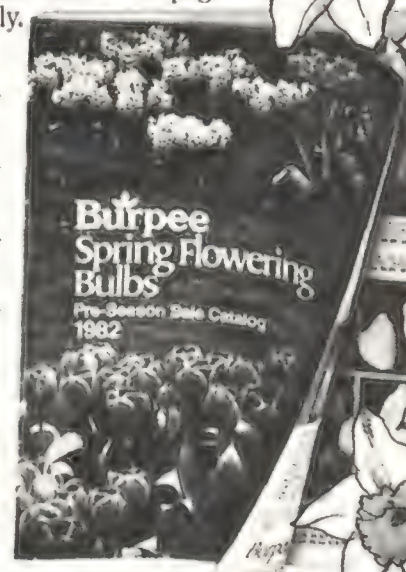

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of Man at sea; he set up his own company for building, installing and operating wireless systems; he recruited a gifted research staff and acquired the patents to protect his and their inventions; he established wireless communication across the English Channel, won a prestigious contract with Lloyd's of London and promoted his company's services with the British and Italian navies.

In 1899, he formed an American Marconi Company (which evolved years later into the Radio Corporation of America) and personally transmitted wireless reports of that year's America's Cup race to the *New York Herald*. During this period he was devising numerous improvements in wireless equipment, including an all-important methodology for selective tuning. Soon he would astound the world by sending a wireless signal across the Atlantic Ocean.

As much as any moment, the transmission of that first frail and controversial radio wave from England to Canada on December 12, 1901, may

Jaunty inventor is photographed aboard *Guglielmo Marconi*, midocean, 1906.

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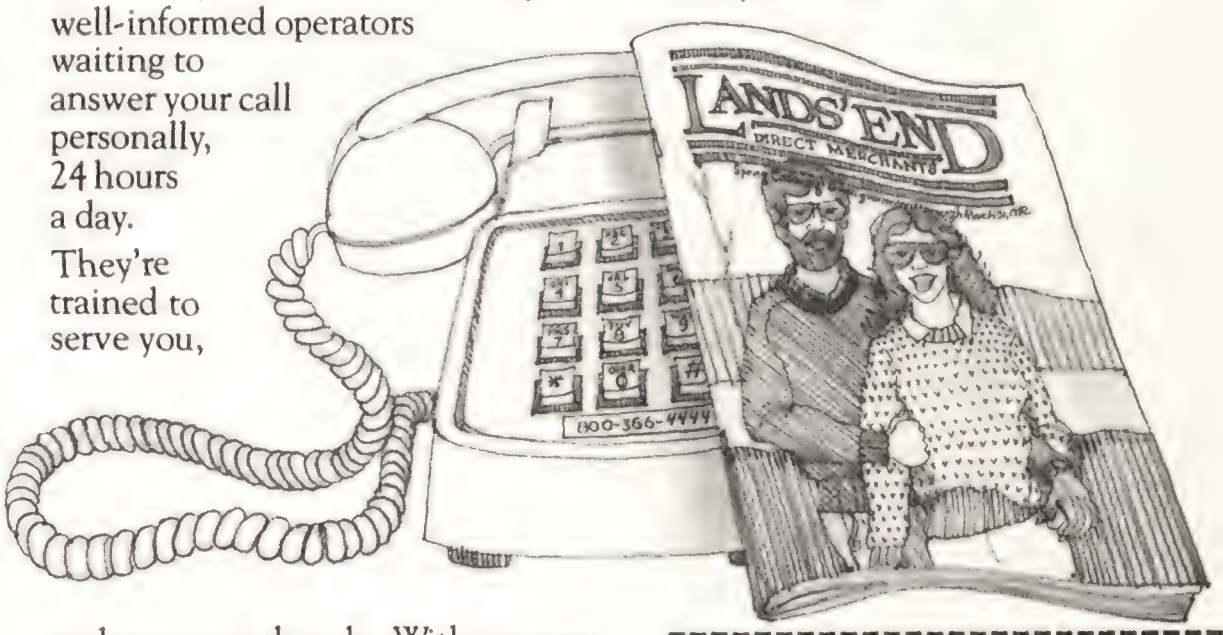

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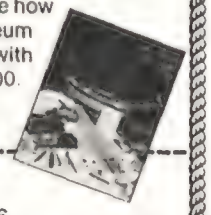

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be said to mark the beginning of the Communications Age. Many scientists had insisted that it could not be done, that at any considerable distance the curvature of the Earth would direct "Hertzian waves" (electromagnetic or "radio" waves discovered by German scientist Heinrich Hertz) out into space. Marconi was not deterred, although he was as unaware as his critics of the existence of the *ionosphere*, which helpfully bends radio signals back to Earth. When he and his assistant, G. S. Kemp (p. 142), received from Cornwall three transmitted Morse dots signifying the letter S at their makeshift Newfoundland wireless station, the skeptics at first remained skeptics. A few months later, however, Marconi stage-managed a carefully documented reception of signals aboard the S.S. *Philadelphia* at a distance comparable to that between Europe

lives saved because of wireless SOS messages sent to rescue ship *Carpathia*.

and North America. With this feat he silenced the doubters for good.

These triumphs came swiftly but not easily. Gales demolished costly stations, transmissions were often erratic, and for years the Marconi Company flirted with bankruptcy. Most troublesome of all, Marconi's obsessive efforts to establish a monopoly on wireless telegraphy were endlessly challenged by rival claimants.

Yet almost from the first he was an international hero. This was the great age of the entrepreneur-inventor—of Edison, Bell, Ford. The special glamour of Marconi's conception, the seemingly magical journey of messages throughout the vast reaches of empty space, gripped imaginations everywhere. The young inventor was lionized by Edwardian society and praised by the popular press. In 1909, at 35, he shared the Nobel Prize for physics. Many nations, including his

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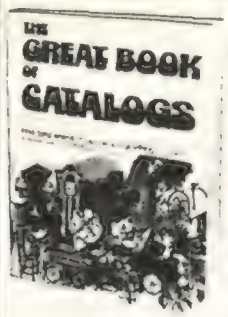

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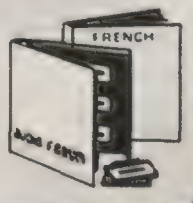

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native Italy, showered him with medals and titles.

Having conceived a great idea, brought it to fruition early in his career and received the credit he deserved, Marconi spent the rest of his life rich, famous and sought after, but not necessarily happy. It is interesting to study his face as it stares back from photographs in family albums and old newspapers. The countenance is pleasant enough, but the expression, even when smiling, is almost always ineffably sad, disappointed, as though the great inventor, like Mithridates, had sipped a little poison every day of his life.

He may in fact have imbibed more than a little domestic poison during the troubled days of his childhood and adolescence. Marconi's Italian father, Giuseppe, was a 38-year-old widower when he met and fell in love with Scotch-Irish Annie Jameson, who had come to Bologna to study bel canto. Eighteen-year-old Annie was more than willing to accept his proposal, but her family forbade the match. Undaunted, the lovers waited until Annie was 21, then eloped. They set up housekeeping at the Villa Grifone, Giuseppe's estate. Ten years later, on April 25, 1874, their second child, Guglielmo, was born. By then, however, middle-aged Giuseppe was becoming a dour, parsimonious provincial and Annie was often discon-

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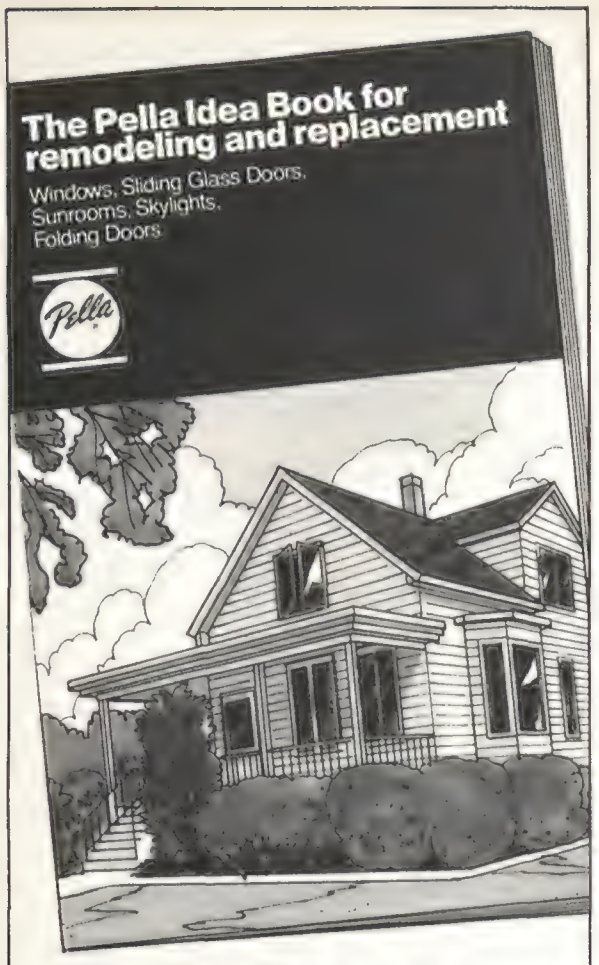
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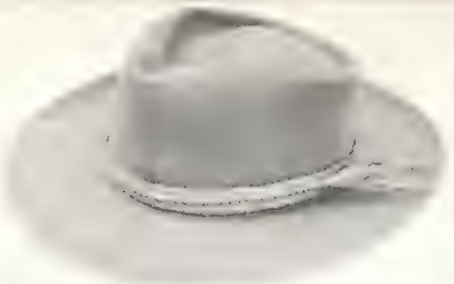
Hint of rare smile shows on Marconi's face while dancing aboard *Elettra*, 1920s.

tented and restless. Guglielmo was soon the pawn in a parental contest of wills, with his mother a hovering protectress and his father the resident tyrant.

The boy did poorly at school. His classmates taunted him because he was aloof and spoke Italian with a British accent. During adolescence he became increasingly withdrawn. His interests—tinkering with gadgets, fishing, playing the piano—were usually solitary. He angered his father by flunking out of secondary school, failing the entrance examination at the University of Bologna and refusing to pursue a naval career. He armed himself, in the words of biographer W. P. Jolly, with a "brittle self-reliance" that protected him from the risks of personal relationships. During a stint at a technical school and, later, under



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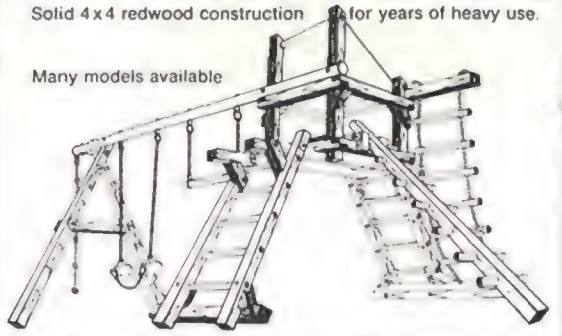

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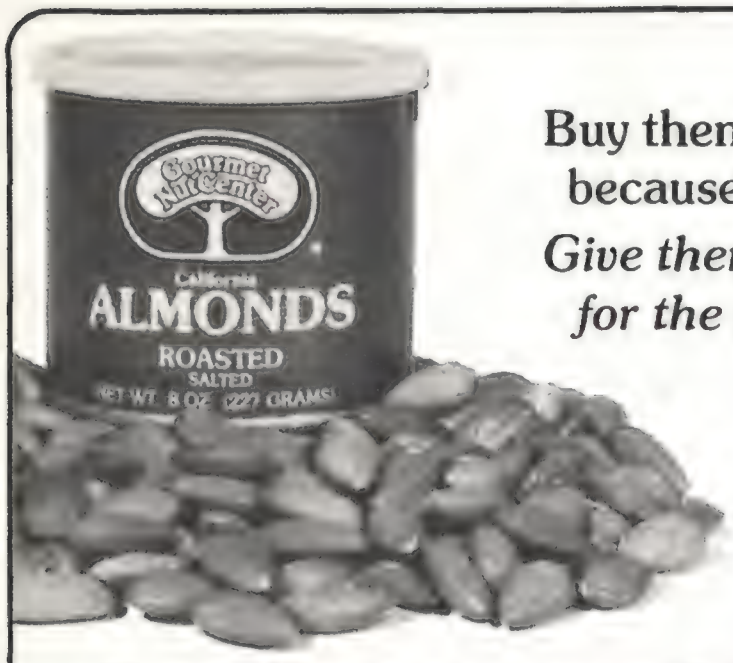

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In early 1920s family sat for informal portrait. From left: Giulio, Degna, Gioia,

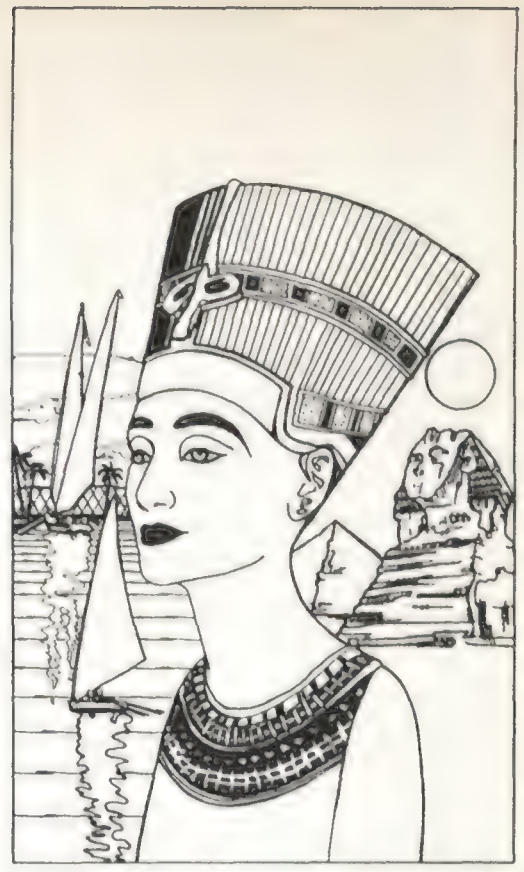
the unofficial guidance of Augusto Righi, a distinguished physicist at the University of Bologna, he discovered the beautifully impersonal world of physics and electricity. In particular he was fascinated by the experiments of Heinrich Hertz with the transmission of electromagnetic waves. Almost at once he conceived the possibility of using Hertzian waves to create a system of wireless telegraphy—an idea, he later said, that was "so elementary, so simple in logic, that it seemed difficult for me to believe that no one else had thought of putting it into practice."

During the autumn and spring of 1894-95, Guglielmo immured himself in the attic rooms of the Villa Grifone. There, consumed by his project, blissfully isolated from everyone—even his mother, who sometimes had to plead with him to go to bed—he constructed the model of a workable wireless system, tapping signals to a Morse receiver across 30 feet of empty space. When the weather turned warm, he moved his equipment to the nearby

smiling Beatrice and Guglielmo, who looks characteristically morose.

fields, discovered the use of the aerial and was soon transmitting signals a distance of a mile. Early in 1896, accompanied by his mother, he was off to England where he would seek, and find, his fortune (p. 126).

As often happens when an idea's time has come, other inventors were hot on Marconi's trail. It mattered intensely to him that he should stay ahead of the pack. Humanitarianism, "pure" scientific research and making money—these were always secondary considerations. His driving motivation was to ally his name so closely with wireless telegraphy that the one would mean the other. Though what we would now call a loner, he deeply wanted people to care about *him*. Fame was the imperative. Clearly, the adult Marconi needed reassurance that his father and teachers had been wrong in supposing that he would not amount to much. Again and again in his personal letters he mentioned with boyish pleasure that his admirers made "lots more fuss over me than over anyone else."



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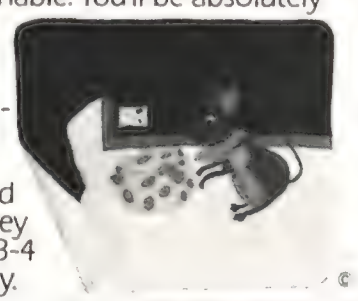

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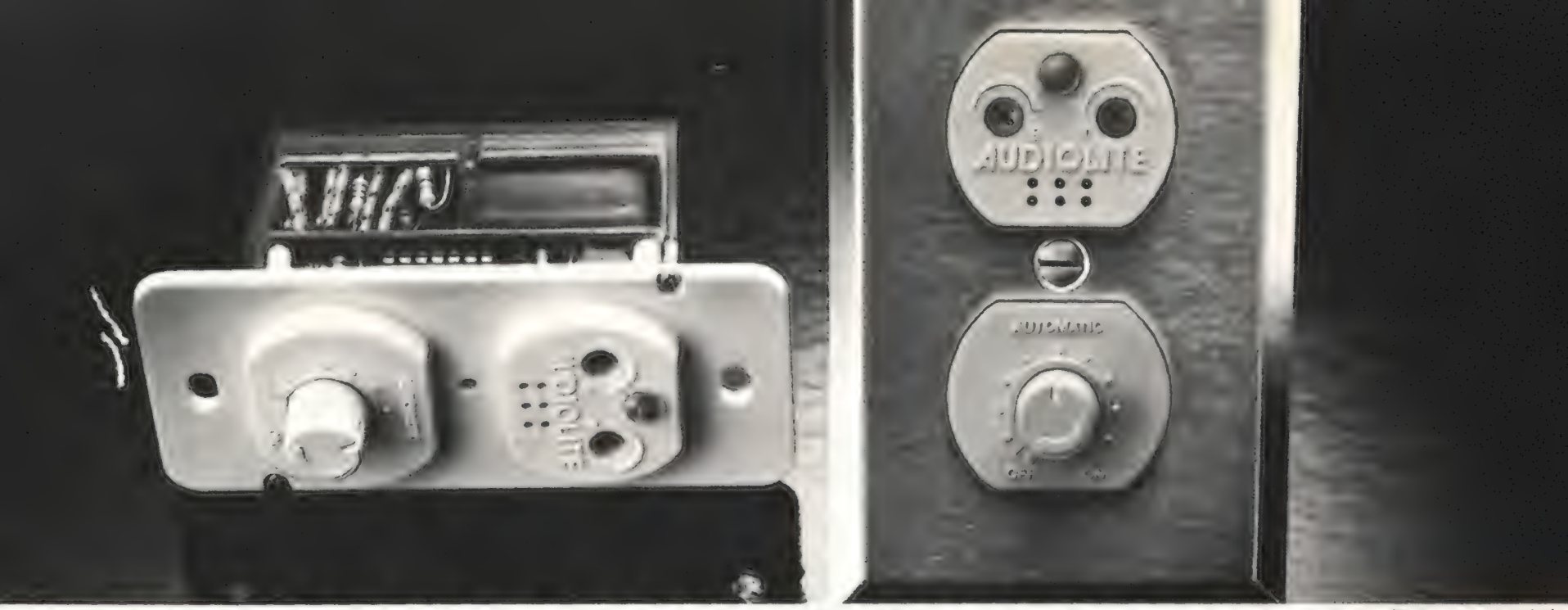
A 1903 drawing satirizes Marconi as he awaits "wireless telegrams" from afar.

In 1912 when survivors from the *Titanic* arrived in Manhattan, he wrote of how he was "mobbed and cheered" by grateful crowds. There was good reason: terrible as the loss of life had been, it would have been much greater if the doomed liner's Marconi wireless had not summoned the ship *Carpathia* to the scene (pp. 130-31); other ships, in turn, relayed information to North America. Moreover, amid the hysterical and contradictory reports that circulated in the disaster's wake, the most reliable bulletins emanated from the Marconi Company's station atop Wanamaker's department store in Manhattan, where a young wireless operator named David Sarnoff remained at his post for three days and nights.

As often happens with those unsure of their intrinsic worth, Marconi could be a bit of a snob. He craved the company of the socially elite. Yet even he could be democratic when it came to talking shop. Today Gioia recalls with a smile one of his visits to her boarding school, an afternoon when "at last I had him all to myself." There would be "delicious ices, perhaps a movie." But as she and her father headed into town, the chauf-



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feur of their rented car revealed himself to be a ham-radio operator. Alas for poor Gioia. During all of that precious afternoon she languished in the driver's flat while he and her father tinkered with a homemade set. Marconi seemed dismayed when he realized the day was gone, but by then she had learned indelibly where she ranked among her father's priorities.

Marconi met his future wife when he was 30. Beatrice O'Brien (p. 132) at 19 was radiantly innocent, but also very aware that she was descended from Irish kings; her home was literally her castle. While Marconi's English manners and accent were impeccable, at first Beatrice considered him—as Annie Jameson's parents had considered his father—too old for her and too foreign. The suitor persevered, however.

Marconi's unpublished letters to Beatrice during the first decade of their marriage suggest that for a while she was able, more than anyone except his mother, to penetrate his formidable reserve. Even so, "Buzzel" and "Dicky," as they frequently called each other, were a mismatched pair. Beatrice was a sociable, often extravagant woman who required much at-

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Marconi with tape, G. S. Kemp at Morse key, play scene in first film of wireless.

tention; Marconi was absent, physically or in spirit, much of the time. When at home, he often locked himself in his office with his engineers.

Yet in spite of distractions and abstractions, Marconi seemed to have genuinely missed his wife at times, especially at isolated spots like the wireless station at Glace Bay where she had once endured a lonely winter as a bride. "I wonder," he wrote, "if you quite realize how much I miss you here where everything reminds me of you and makes me feel so very lonely and bare without you. I do love you my darling chick." But his moods changed restlessly, something Beatrice had to learn. On this particular occasion she made a decision she would regret: she took passage on a pilot boat so as to meet her homebound husband while his ship was still on the high seas. She was carrying his second child and meant to surprise him with the news. Marconi was indeed surprised; so was Beatrice. When she boarded the liner unannounced, she discovered that he was the star attraction of a floating house party, with several women in attendance. The premature reunion left husband and wife angry and humiliated.

Marconi, true to his time and class, was a firm believer in (and practitioner of) the double standard. From America he wrote that he had

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visited "the great girl college at Vassar. Just fancy I dined with one thousand two hundred girls—the only man there—nearly all flappers. . . . Just in my element—as you would say." Again and again he swears that he is being "very good all the time."

Marconi meant well ("My own sweetest, I shall try to be a better hubby"), but there were terrible rows. A photograph taken just after one of them reveals him and the children looking as though they wished they were elsewhere, while Beatrice dares the camera with a smile (pp. 136-37).

World War I provided an extended period of domestic truce. Marconi had a strong love for his native land and spent much of the war supervising Italian wireless communications at the front. (This same patriotic fervor would lead him to join Mussolini's Fascist Party in 1923, a decision that eventually came to haunt him.) At Versailles, he signed the peace treaty for Italy. As Degna writes, the family was "held together by the immensity of the horror that swept Europe." But, she adds, "after the nations found peace, we lost ours."

The war had destroyed the Edwardian social order and its conventions. The obligation to behave as though one were "very good," even if one weren't, no longer mattered. Marconi, who loved the impersonal "openness" and "mystery" of the sea, bought the elegant, 700-ton *Elettra*, the better to conduct ambitious new experiments with short-wave wireless, but also, on occasion, to host his own aquatic house parties. On one long cruise, he openly conducted an affair while Beatrice was aboard. Degna concludes, "The blatancy of the adventure robbed Mother of her last line of defense—the pretense of ignorance."

In 1923, Beatrice asked Marconi for a divorce; an Italian nobleman had been paying court to her for some time and she had decided to marry him. During this period Marconi was preoccupied with his own "higher destiny." For almost 20 years he had

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In 1926, Marconi decided that he too wished to remarry. His intended, Cristina Bezzi-Scali, was the beautiful young daughter of a noble Roman family with close ties to the Vatican. It was imperative, therefore, that his

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previous marriage be annulled by the Roman Catholic Church. With Beatrice's collaboration, he achieved the annulment by convincing an ecclesiastical court, apparently with little reference to the truth, that he and his first wife had embarked upon their marriage with deep reservations that amounted, in the church's eyes, to "defective intention."

The children of Marconi's first marriage (he had another daughter, Elettra, by Cristina) were the casualties of its demise. There were recriminations and threats concerning financial settlements. He was convinced, wrongly, that his children were implicated in these disputes and with an almost paranoid fury turned against them. Since they still loved and admired him, this absolute withdrawal of his fluctuating affection, as well as the prerogatives that went with his name, had a calamitous effect on their own sense of self-identity and worth.

During the Thirties, Marconi began what has been described as "a spiritual withdrawal into his home country." He was heavy with honors: Senatore, Marchese, Citizen of Rome, president of the Royal Academy of Italy (p. 140). He continued to play the public role of the great, if somewhat outdated, inventor while his sense of detachment deepened. He continued his travels as well as experiments with microwaves and radar, but he was embittered because the British government had forced his company to become the minority shareholder in a larger entity, Cable and Wireless Limited. Thus his dream of directing an Imperial wireless network was shattered. (His company survives as a subsidiary of the General Electric Company—GEC-Marconi Electronics Limited—concerned with a vast array of gadgetry from marine communications to missile guidance.)

Increasingly, Marconi was shadowed by melancholia and poor health, including a series of heart at-

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tacks that began in 1929. Referring to his great invention, he once wondered aloud, in a rare moment of self-questioning, "Have I done the world good, or have I added a menace?"

In the last year or two of his life, he may also have become wistful about his lost family. At any rate, he began to see Degna and Gioia again. At Gioia's last reunion, her father squeezed her hand—an exceptional gesture—and said, "This has all been awfully hard on you, but I'm going to remedy that."

Soon after, on July 19, 1937, Marconi met with his lawyer in Rome, an indication that he may also have meant to arrange a financial "remedy." But later that day he suffered another heart attack and, in the small hours of the next morning, died. He was 63. Just before absenting himself forever, he whispered (was it a verdict on his important yet somehow empty life?) what Gioia maintains were these words: "I know I am dying but I don't care at all."

Of the many who did care, wireless operators throughout the world offered the most appropriate tribute to Marconi: the next day they shut down their transmitters for two minutes of global silence.

Gioia Marconi Braga founded Fellowship to commemorate father's achievements.

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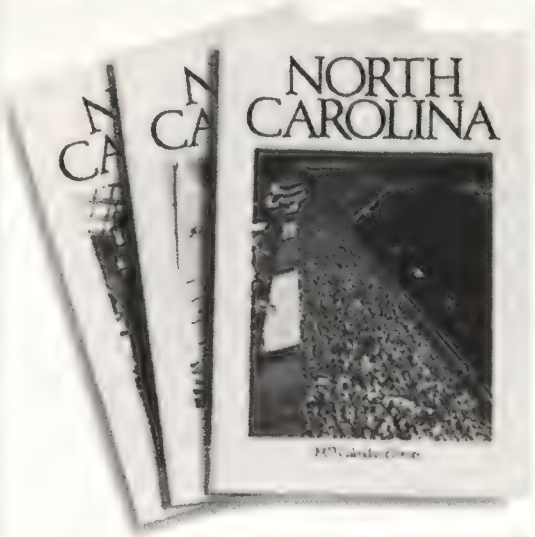

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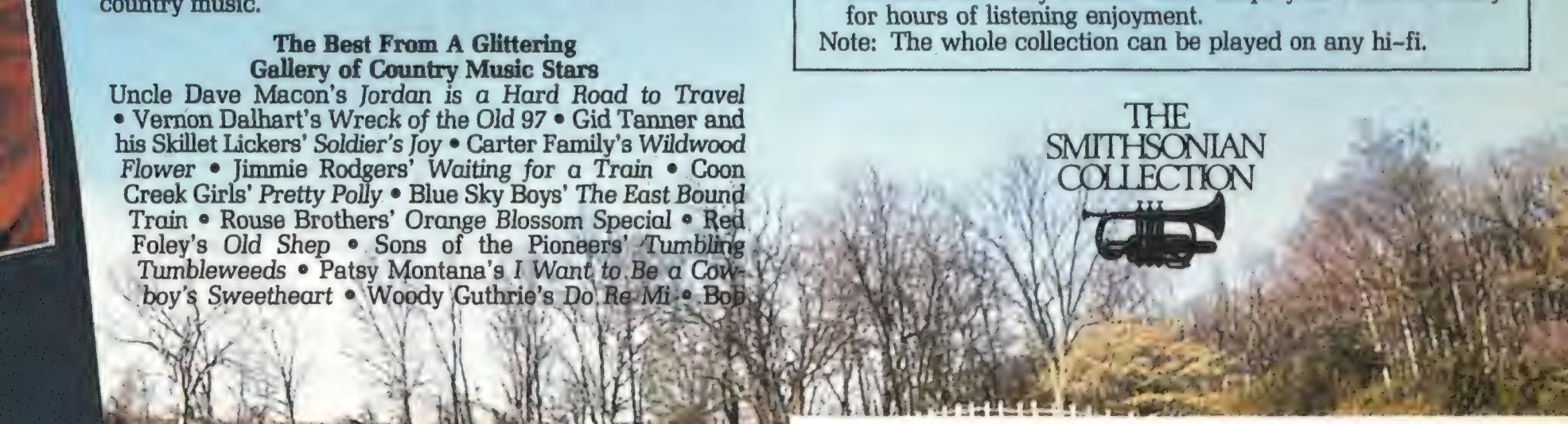

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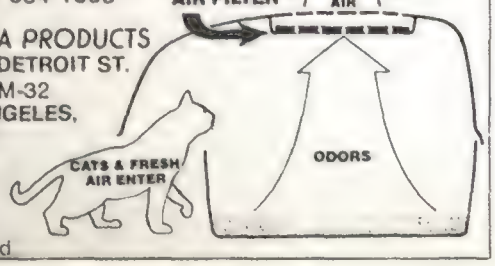

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Book reviews

The Soul of a Tree
George Nakashima
Kodansha International, $52

George Nakashima has long been lionized in relative obscurity in his monastic New Hope, Pennsylvania, workshops, where for some 35 years he has designed and built exquisite furniture of a very special sort (SMITHSONIAN, September 1972). From his tables and chairs flows the unadorned beauty of the rhythms of nature, statements made by the whorls and burls and other highly figured "imperfections" locked in the grain of the great logs of American oak, English walnut, East Indian rosewood and other fine woods trundled to his warehouses from all over the world. Like a cutter of a precious gem, he may study a three-ton log for weeks before it is sliced lengthwise into several dozen thick planks, to allow the tortuous grain to reveal that tree's life story. He may study a single plank for years, considering how best to present the convoluted grain in an object for human use.

George Nakashima's sturdy art is a devotion to the marvelous life forces that sustain the tree in the face of adversity, and he stands in awe before great trees such as the Yaku *sugis* of Japan, some with a diameter of over 40 feet at the base and an age of perhaps more than 5,000 years. Yet he is but a humble editor or interpreter of these natural scriptures, who pokes his way "through the valley of the fallen giants, finding here and there fragments which will be given a second life." He is "seeking kinship with each piece of wood . . . finding peace and joy in shaping timber into objects of utility and perhaps, when nature smiles, beauty."

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In the search for this beauty, Mr. Nakashima seeks to impose as little as possible of himself on nature's design, seeming to follow the Taoist principle of *wu-wei*, of non-intervention, of not forcing or going with the flow, to celebrate the *li*, the "organic pattern" embedded in the grain.

Nakashima has long quested for the true flow of life. Born in the Pacific Northwest of samurai lineage, he hiked to the tree line in the mountains of the Olympic Peninsula, where the forces of weather grapple most harshly with the trees, stunting and twisting them into fantastic shapes. As a young architect he went to Paris in the early 1930s to live in "polite starvation" within walking distance of the construction site of Le Corbusier's Swiss Pavilion. But today he recalls a feeling of death in Paris, bred of the rootless life and art of a generation that read Spengler, a milieu that prompted him to go on to Japan, leaving behind "the whole modern art movement with its egotism and lack of beauty."

In Tokyo he began to work in the architectural offices of Antonin Raymond, an American of Czech birth. The firm had a design and construction project for the Sri Aurobindo Ashram in Pondicherry, India, and Nakashima volunteered to go there to undertake the project. He soon became enchanted with the simple, sin-

George Nakashima's elegant Conoid chair

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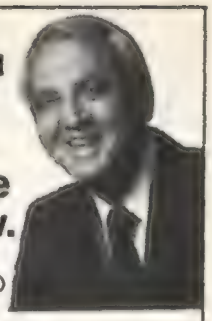

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cere communal life, and stayed on after the construction was completed, becoming a disciple of Sri Aurobindo, who gave him the Sanskrit name Sundarananda, "one who delights in beauty." But after two years in the protective haven of the ashram he concluded that he was a Karma Yogin, one who follows the path of action. He returned to Tokyo, where he worked for six months before returning to Seattle in 1941. After seven years in Asia he found the "structure and the bones" of American architecture somehow inadequate and, moreover, the workmanship shoddy. He concluded that he must find a new vocation, one in which he could firmly control both the design and execution. It was then that he decided to make woodworking his life's work.

His desire for an integrated, self-reliant life was soon tested on Antonin Raymond's farm just outside New Hope, where he had moved with his wife and infant daughter, Mira, after release from the internment camp in Minidoka, Idaho, where they, along with other Japanese-Americans living on the Pacific Coast, had been placed. A short time later, through the generosity of a neighbor, he was able to secure the land on Aquetong Road where over the past three-and-a-half decades he and his family have patiently and methodically built a home and workshops, stone by stone, beam by beam.

These have been the dominant growth rings in George Nakashima's life, and this book lays bare his soul, his beliefs and his work, just as a mill saw steadily slices toward the pith of a mature tree. His reflections are like the tale softly told by a tree's revealed growth rings, of the irregular events that shape a life. As a gentle *sensei*, or teacher, George Nakashima unselfconsciously shares his experiences with us, in what at first might seem to be merely chatty reminiscences, apparently without a point. There are photographs of him and his family in their home, a high chair he designed for his daughter Mira, sketches of Bucks County colonial farmhouses. But such is the true grain of life, and this summing up reminds us of the wisdom and truth to be gained from our own daily reality.

John G. Fox
Builder and woodworker

Audubon's Birds of America: The Audubon Society Baby Elephant Folio
By Roger Tory Peterson and Virginia Marie Peterson
Abbeville Press, $185

John James Audubon, symbolic patron saint of American bird conservation, fanatically drove himself to paint and publish life-size all the birds known from this country in the early 19th century. From the very start, Audubon had financial woes; and even today the pressures of the high production costs of colorplates conflict with publishers' desires for wide availability.

Birds of America was first issued in a magnificent four-volume Double Elephant Folio edition of 435 hand-colored engravings and aquatints by William H. Lizars of Edinburgh and Robert Havell jr. of London from 1827 to 1838. It was accompanied by a separate five-volume royal octavo text, *Ornithological Biography*, printed in Edinburgh from 1831 to 1839. Audubon's four mammoth tomes of plates, which measured 29½ by 39½ inches (the heaviest volume weighed 56

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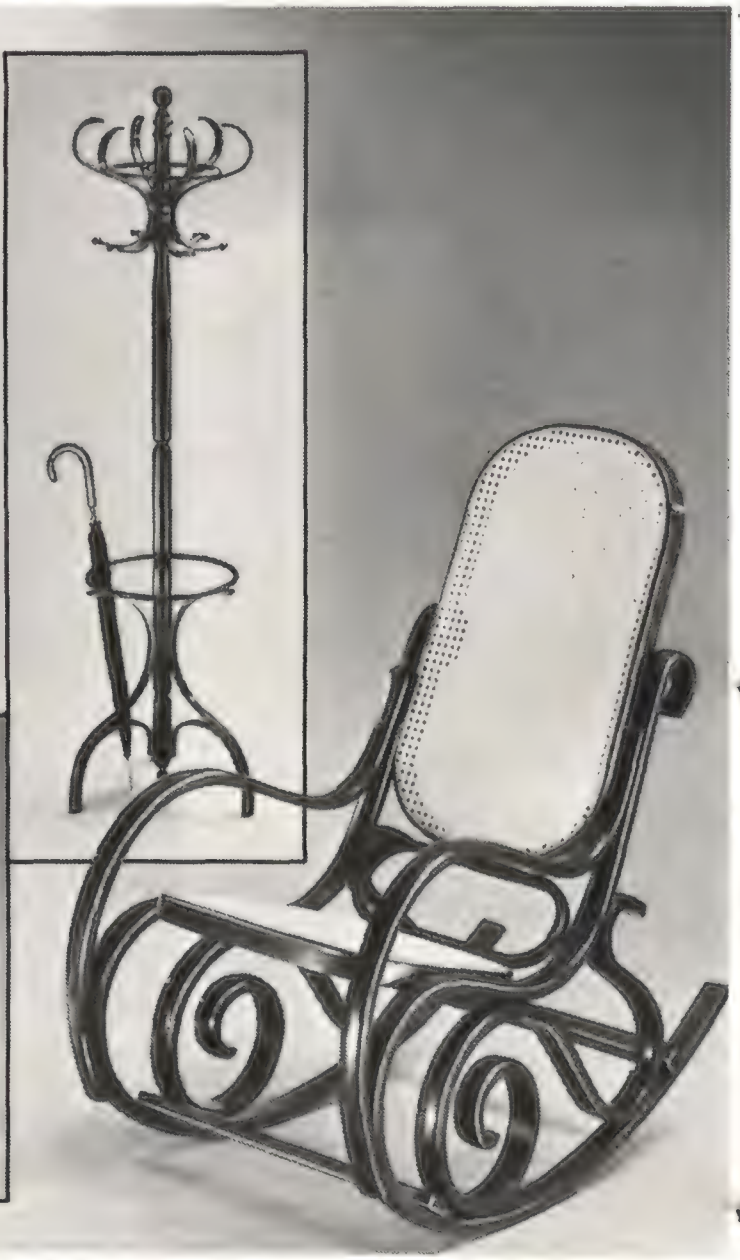

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pounds), cost the original 175 subscribers $1,000 per set. A set today would probably bring more than $500,000 at auction.

After his father's death, John Woodhouse Audubon planned to reissue an Elephant Folio of chromolithographs by Julius Bien. Only one volume of this American edition appeared in 1860; the project was a victim of the Civil War.

Although Audubon was unable to find enough subscribers or an engraver for his Elephant Folio and Ornithological Biography in the United States, he saw the need for a lower-cost edition in this country. During the years 1840-1844 he issued a royal octavo edition of *Birds of America* in seven volumes, combining miniaturized lithographs of his plates with the text. This successful venture was followed by seven more U.S. octavo editions between 1856 and 1871.

Red-breasted merganser (female above) has serrated bill and rakish crest.

As this country recovered from the Depression, Macmillan published a reduced size one-volume quarto edition of the Elephant Folio for $12.95 in 1937, which was reprinted at even lower cost in 1942 and 1953. The reproductions were far inferior to those of 100 years earlier, but they provided me and many others much enjoyment and they made Audubon's art widely available. And finally now, as a successful compromise, Abbeville Press, with the cooperation of the National Audubon Society, has produced a superbly printed 712-page "Baby Elephant" Folio that measures 11¾ by 15 inches and weighs more than 16 pounds. Its color reproductions are first-rate and its price, although steep, is reasonable for a book with so many color reproductions.

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The Baby Elephant Folio, based on photographs of the plates in a copy of the Elephant Folio belonging to the National Audubon Society, was printed in Japan. The plates are reproduced as full pages, spreads or foldouts. There seems to be little artistic or ornithological reason for determining the size of reproduction of a particular plate. And I find it annoying that the binding bisects the body of a bird in many of the two-page spreads while several of the foldouts show complete birds on both halves of the page. Some of the songbirds (*e.g.* the Horned Lark and the Snow Bunting) depicted on spreads appear larger than life, while the majestic wild turkey cock, the osprey, the flamingo and the two cranes are all cramped on single pages.

The text has been written by Roger Tory Peterson of field-guide fame, himself a fine bird artist, and his wife Virginia. Audubon's plates originally appeared in the rather random order in which they were printed, but the Petersons have rearranged them in an up-to-date systematic sequence that groups related birds together and allows the reader to compare them directly. Different age classes, or even the two sexes of a species, were not always in the same Audubon volume. Audubon's nomenclature also has been updated, and the Petersons have provided brief thumbnail commentaries for the species on each of the plates.

Roger Tory Peterson has written an extended introduction which includes a brief biography of the artist, highlighting Audubon's dependence on his shotgun, in ironic contrast to his current conservation image. Peterson also presents a short history of bird art and illustration in America and a longer potpourri commentary on contemporary bird artists with color examples of their work. Photography and modern binoculars have certainly produced far more scientific accuracy, but Audubon's lively birds are not paled by the later competition.

All but two of Audubon's original paintings, with the artist's handwritten instructions for the engravers and colorists, are on display at The New-York Historical Society, which purchased them from his widow in 1863 (after they had been offered to the Smithsonian Institution). The paintings were reproduced in two volumes published by American Heritage in 1966. I recommend a visit to New York or a look at these volumes for comparison with the Baby Elephant Folio to demonstrate the considerable enhancement the engravers and colorists contributed to the original Elephant Folio.

The Baby Elephant Folio comes in three editions. A standard trade edition (with attractive paper jacket) and an Audubon Society edition (with linen slipcover), are handsomely and sturdily bound in natural white linen. A limited leather-bound edition (2,500 copies), numbered and signed by the Petersons, with marbled end papers, capcords, marker ribbons and hubbed spine, is available for $350. For those of us whose families were not farsighted in the 1830s or who now cannot raise half a million dollars for an original Elephant, the Baby is a very welcome substitute.

George E. Watson
Curator of Birds
National Museum of Natural History
Smithsonian Institution

Twins: An Uncanny Relationship
Peter Watson
Viking, $12.95

The 1979 reunion of Jim Lewis and Jim Springer, identical twins who had been lost to each other since their infancy 39 years earlier, was both a poignant human drama and a unique study opportunity. Researchers at the University of Minnesota hoped that the "Jim twins" might help them resolve one of the most intriguing mysteries of human behavior: the relative influence of heredity and environment on who and what we are.

The journalistic attention that the grateful if somewhat bewildered Jims received (including a SMITHSONIAN article by this reviewer in October 1980) flushed out more sets of twins who had been separated shortly after birth and reunited as adults. The Minnesota team—psychologists, medical doctors and other specialists—then subjected the twins to a week-long series of tests, interviews and examinations that probed everything from their phobias to their physical infirmities to their sex lives. Expecting to confirm the fashionable view that environment in many cases is more important than genetics in shaping behavior, the scientists were startled to discover that the similarities between these pairs were sometimes so striking as to approach the bizarre.

The Jims, for example, not only enjoyed the same hobbies and drove the same kind of car, but they had married women with the same name and vacationed at the same resort. Other twins raised in sharply different circumstances also displayed stunning similarities.

What are we to make of all this? The Minnesota scientists have not leaped from a relatively small sample of behavioral parallels to the full-blown conclusion that genetics makes us what we are, but they acknowledge that the evidence clearly points to a stronger genetic influence than was suspected previously.

Watson is concerned with putting the findings in perspective, and he touches briefly on social-political implications. Contending that government programs to reduce crime and inequality and improve race relations have failed, he asks whether "these failures occurred because social scientists have misunderstood human nature . . . that they assumed that change can be brought about by environmental manipulation when people are less malleable than they would like to believe." A sobering thought, to be sure.

Watson's book, a cut-and-paste collage of the various twins studies under way around the world, is long on their sometimes contradictory statistics and short on analysis. He takes pains to show that the coincidences uncovered in Minnesota are not *that* farfetched. Unfortunately the writing style is hasty at best and garbled at worst.

I am grateful to him, however, for unearthing one gratifying fact that eluded me in my own ramblings through the Minnesota clinics: a pair of fortyish British women known to the researchers as the "giggle twins" livened up their off-hours by inventing a cocktail they called "Twin Sin"—one ounce vodka, one ounce blue curaçao, one ounce crème de cacao and an ounce and a half of cream. Make that a double, bartender.

Donald Dale Jackson
Connecticut-based freelance writer

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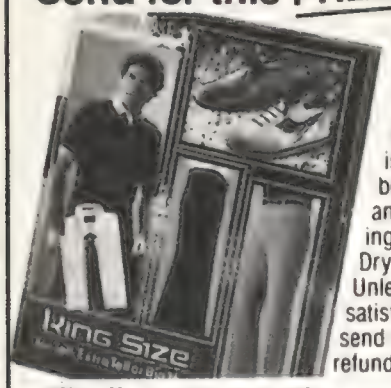

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Additional reading

The Acropolis (p. 44)

The Acropolis by R. J. Hopper, Hamlyn (London, New York), 1974

Pictorial Dictionary of Ancient Athens by John Traulos, Praeger, 1971

Architect and Sculptor in Classical Greece by Bernard Ashmole, Phaidon, 1972

The Parthenon Frieze by Martin Robertson and Alison Frantz, Phaidon, 1975

Greece Through The Ages by Helen Hill Miller, Funk & Wagnalls, 1972

"Will the Acropolis Some Day Be a Copy?" by Malcolm Carter, *Art News*, February 1978

Beltsville (p. 54)

The Gardener's Bug Book by Cynthia Westcott, Doubleday, 1973

Hunger Signs in Crops, edited by Howard B. Sprague, Longman, Inc., 1977

Reproduction in Farm Animals, edited by E. S. E. Hafez, Lea & Febiger (Philadelphia), 1980

Modern Fruit Science by Norman F. Childers, Horticultural Publications, Rutgers University, 1978

Samuel Yellin (p. 66)

Ornamental Ironwork by Susan and Michael Southworth, David R. Godine, 1978

Sketches in Iron: Samuel Yellin by Myra Tolmach Davis, The Dimock Gallery, The George Washington University (Washington, D.C.), 1971

"Samuel Yellin and His Work" by George Howe, *The Journal of the American Institute of Architects*, May 1923

Thraxisp (p. 86)

The Search for Life in the Universe by Donald Goldsmith and Tobias Owen,

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The Grand Tour by Ron Miller and William K. Hartmann, Workman Publishing (New York), 1981

Roxie Laybourne (p. 98)

A Field Guide to the Birds by Roger Tory Peterson, paintings by Arthur Singer, Houghton-Mifflin, 1980

Birds of North America by Chandler S. Robbins, Bertel Bruun, Herbert S. Zim, Golden Press, 1966

Henry Alexander (p. 108)

"Henry Alexander: San Francisco's First Native-born Artist" by Lois K. Gordon, on file at Archives of American Art, Smithsonian Institution

"Henry Alexander: Chronicler of Commerce" by Raymond L. Wilson, *Archives of American Art Journal*, Vol. 20, No. 2, 1980

After the Hunt: William Harnett and Other American Still-Life Painters, 1870-1900 by Alfred Frankenstein, University of California Press, 1969

Queen conch (p. 119)

"The Biology, Fisheries, and Management of the Queen Conch, *Strombus Gigas*" by Willard N. Brownell and John M. Stevely, *Marine Fisheries Review*, Vol. 43, No. 7, 1981

Proceedings Queen Conch Fisheries and Mariculture Meeting, edited by Carl J. Berg, The Wallace Groves Aquaculture Foundation, Freeport, Bahamas, 1981

"Contributions to the Biology of the Queen Conch, *Strombus Gigas*" by John E. Randall, *Bulletin of Marine Science of the Gulf and Caribbean*, Vol. 14, No. 2, 1964

"Notes on the Anatomy of the Queen Conch, *Strombus Gigas*" by Colin Little, *Bulletin of Marine Science*, Vol. 15, No. 2, 1965

Marconi (p. 126)

Marconi by W. P. Jolly, Constable (London), 1972

My Father, Marconi by Degna Marconi, McGraw-Hill, 1962

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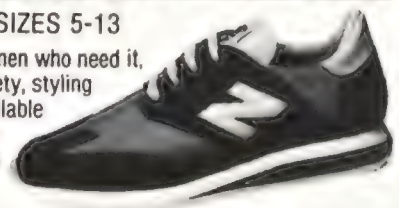

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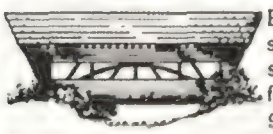

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Smithsonian highlights

The Renwick shows us how the world celebrates in a major exhibit opening March 17—how some 60 cultural groups feast and fast, sing and dance, and mark birth, marriage and death. And the more than 600 objects represent only a beginning: the second part of "Celebration: A World of Art and Ritual" features religious shrines, harvest and industry and opens in August.

Special March events

National Air and Space Museum
U.S. Army Helicopter Championship (open March 19) Honors team that won contest in Poland in August 1981.
Search for a New Planet (March 24), *Aerobatics to Astronautics* (March 25), *Airlines in China Since 1920* (March 31) Lectures, 7:30 P.M.
Astronomy from Your Own Backyard (March 6, 9 A.M.) Monthly sky lecture.

Cooper-Hewitt Museum (New York)
Hawai'i (March 9-May 9) Hawaiian culture, past and present (p. 164).
English Majolica (March 23-June 13) Colorful ceramic ware of the 19th century.

National Museum of American History
G. Washington: A Figure Upon the Stage (through January 11, 1983).
Franklin Delano Roosevelt: The Intimate Presidency (through August).

National Museum of Natural History
The Vanishing Race and Other Illusions: Photography by Edward Curtis, 1900-1930 (March 3-April 15) A critical look at his work as documentation versus art.
Orchid Paintings by Regina O. Hughes (through April 11).

Renwick Gallery
Celebration: A World of Art and Ritual (March 17-June 26, 1983) Major exhibition of some 600 objects.

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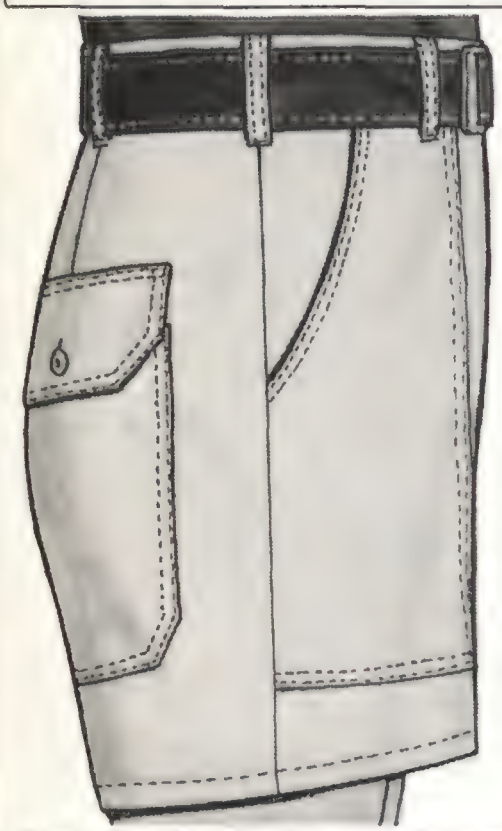

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National Portrait Gallery
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The 18th-Century Image of George Washington (through April 27).

National Museum of American Art
Egypt: Day and Night, Watercolors by Keith Achepohl (through May 9) Bold architectural images.
Recent Trends in Collecting: Art from NMAA (through March 21).

Hirshhorn Museum & Sculpture Garden
Red Grooms from the Museum's Collection (through May 2) Lively, often zany works by this popular artist.

Regional events

The Regional Events Program will visit Columbus, Ohio, on March 10-21, and Cincinnati on March 12-20. Subjects range from sculpture and Dutch art to volcanism and fossils. Area associates should have received invitations by this time. For information, write: Regional Events, 1208 A&I, Smithsonian, Washington, D.C. 20560.

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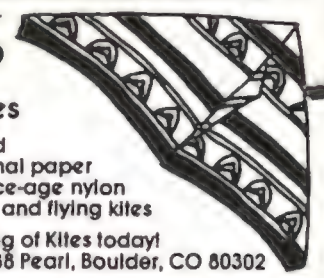

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Smithsonian events

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Ancient Anatolian Civilizations (March 20) All-day seminar.
The Genius of British Architecture (March 27) All-day seminar.
Salute to the Oscars: Film Series (Tuesdays, beginning March 30, 7:30 P.M.).

For information and tickets to Division of Performing Arts events, call 367-1500:
The Cabaret (March 11-14, 8 P.M.) Songs and sketches from the Fifties.
Emerson String Quartet and Friends (March 12-14, 7 P.M.).
Folger Consort (March 22, 8 P.M.).
Sukanya (March 27, 8 P.M.) Indian dance.
Grandpa Jones (March 28, 8 P.M.).

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SITES circulates exhibitions to hundreds of cities outside Washington. To sponsor a show in your community, write to Eileen Harakal, SITES, Smithsonian Institution, Washington, D.C. 20560. Here are some March exhibits:

Anchorage (March 20-April 18) *The Contemporary American Potter*, Anchorage Historical and Fine Arts Museum.
St. Petersburg (March 20-April 25) *Berlin Porcelain*, Fine Arts Museum.
Northampton, Massachusetts (March 20-April 18) *The Ogla Hirshhorn Collection*, Smith College Museum of Art.
St. Paul (March 6-April 18) *Innovative Furniture In America*, Minnesota Museum of Art.
Flushing, New York (March 27-May 9) *Corpus Christi Dance Costumes of Ecuador*, Queens Museum.

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Highlights continued

Hawaii, those royal isles

Hawaii today is an amalgamation of cultures, but for a thousand years before missionaries, merchants and immigrant laborers set foot there, the Hawaiians were developing a unique culture in isolation from the outside world. How complex this culture was is illustrated by "Hawai'i: The Royal Isles," an elaborate exhibition tracing the evolution of the islands, from ancient chiefdoms to 50th state. This marks the first time rare artifacts from the Bernice Pauahi Bishop Museum in Honolulu are being seen outside the Hawaiian Islands. The traveling exhibition is sponsored by the National Endowment for the Humanities and United Airlines, and makes a stopover at the Cooper-Hewitt March 9-May 9.

The original Hawaiians were Polynesians whose ancestors had island-hopped from other Pacific homelands. They had a complex religion in which *kapu*, or taboos, played an important part in governing behavior and safeguarding the hierarchical society. *Kapu* and other traditions gradually disintegrated after the death in 1819 of Kamehameha I (right), the first ruler to unify the islands. His successors began to bend with the wind, and the West.

The exhibit portrays this history with photos, maps and paintings of major events (the death of Captain Cook) and richly garbed kings and queens. But it's the artifacts that reveal a native heritage, rain gods and fishing gods, poi pounders and bamboo flutes. Seen are royalty's feathered cloaks and helmets, and the bark-cloth skirts worn by women —until missionary wives felt compelled to introduce the dress, the future muumuu. Ornaments were elaborate, the most valued being the hook-shaped whale tooth pendant, and the most familiar the lei of flowers and leaves. Bowls, called calabashes, were considered symbols of the extended family. Those who dipped their fingers into the same container to share food were called "calabash cousins."
Carol Simons

King Kamehameha, born about 1758, was shrewd warrior who unified islands.

Found in cave, this wooden figure has human hair, mother-of-pearl eyes.

Feather-covered basketry image epitomizes traditional, technical skills.

Portuguese immigrants' instrument led to ukulele, like this one from 1930s.

Calabash shows merger of Hawaiian, Victorian values in 19th century.

Feathered garments, such as Joy cloak, were worn by males of high rank.

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For more than 50 years, Duff and Phelps has provided investment research and financial analysis to institutions and corporations. The firm has long been a leader in utility investment research, tracking more than 200 utility companies across the country. In addition, Duff and Phelps issues credit ratings on fixed income securities and commercial paper.

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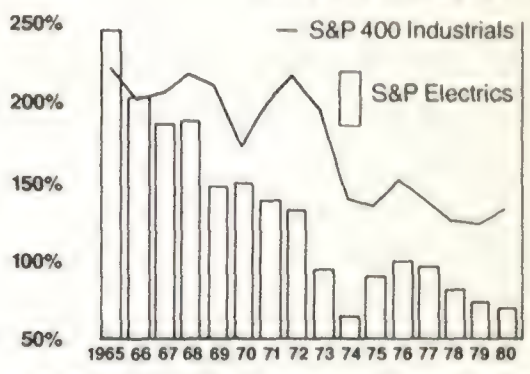
When establishing allowable rates of return, regulators must balance their efforts to keep down immediate consumer costs against the even more important responsibility to assure adequate power supplies for the future.

Claire V. Hansen

Market-to-Book Ratios
Electrics vs. Industrials
Source: Duff and Phelps, Inc.

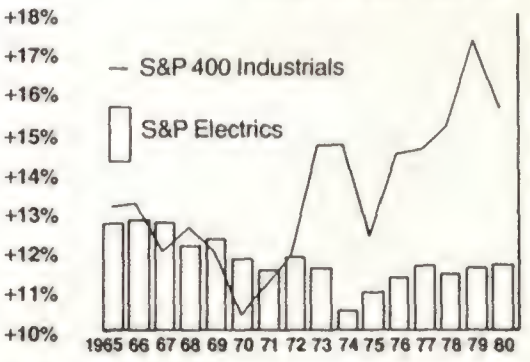


How D&P Rates the Regulators

In addition to rating utility company securities, Duff and Phelps rates state regulatory commissions. It looks for:

1) **decisions based on realistic projections of sales, expenses and investments, rather than on out-of-date historical data;**
2) **permissible rates of return on equity that are competitive in financial markets;**
3) **prompt rate decisions.**

Return on Common Equity
Electrics vs. Industrials
Source: Duff and Phelps, Inc.



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Domestic Study Tours

Savannah/Charleston April 12-19: Experience the gracious living of the past with visits to historic homes and plantations.

Sea of Cortez April 23-May 1: An adventure cruise to observe whales, dolphins, sea lions and rich birdlife.

Asheville May 20-24 or October 14-18: Biltmore and historic homes—plus the World's Fair at Knoxville, Tennessee.

Bryce, Zion and the Grand Canyon June 2-10 or September 8-16: Hike spectacular trails while learning about the geology, wildlife and flora of these national parks.

Alaska June 18-July 2: Explore the glaciers and fjords from Seattle to White Horse; then spend six days at Camp Denali in Denali National Park (formerly Mt. McKinley).

Boston June 23-27: Study the city's Colonial past and vibrant present with walking tours and visits to historical properties and museums.

Family Sampler June 24-27: Special program for parents and children (ages 7-14) at Smithsonian museums and the zoo.

Glacier/Waterton National Parks July 8-17: Hike scenic trails through forests and alpine meadows. Accommodations in park lodges.

High Sierra Base Camp July 17-24: Wilderness camping and hiking adventure.

Desolation & Gray Canyons July 21-31: White-water trip (in Sportyaks) and camping on Utah's Green River.

Colorado Rockies August 1-7: Enjoy the outdoors and learn about the area's geology, botany and zoology.

Salmon River August 5-13: See bears, bighorn sheep and spectacular scenery while rafting in Idaho's wilderness.

Grand Canyon August 13-23 or August 27-September 6: A sublime spectacle, seen on a raft trip down the Colorado River.

Colorado Mining and Railroad History August 21-29: Trace the colorful Gold Rush Era from Denver to Durango.

Coming in August . . . Massachusetts Heritage Architecture, antiques and music in the New England countryside.

Washington "Anytime" Weekend An economical and convenient way to visit your choice of Smithsonian museums for two or more nights at Loew's L'Enfant Plaza or Hyatt Regency. Package includes hotel, two meals, Tourmobile ticket, and exclusive tour of Smithsonian castle. Reservations and payment at least ten days prior to arrival.

Foreign Study Tours

These tours range in size from small group experiences to charter adventures and vary in price from low cost to deluxe, depending on the type of travel, destination visited and length of trip:

People's Republic of China 1982 New exclusive programs for travel with a Sinologist to learn about the art, ancient treasures, temples and bustling cities of this complex culture.

Ecuador and the Galápagos Islands April 4-15: Quito and a seven-day voyage on the *Buccaneer* to study rich plant, bird and animal life in this unspoiled area.

Crete and Rhodes May 3-17: Minoan palaces, Byzantine frescoes and other archaeological sites amidst beaches and whitewashed villages.

London May 9-23: A full program of special lectures, walking tours, theater, excursions and a five-day travel seminar into the English countryside.

History and Romance of the Rhine May 17-June 1: After a program in Switzerland, board our chartered boat for a study voyage to the great castles and cathedrals on the Rhine. Guest lecturers will interpret the splendors of Strasbourg, Cologne and Amsterdam.

Yugoslavia May 21-June 5: From Dubrovnik, the remote southeastern region affords a rare opportunity to visit a rich variety of landscapes and monuments.

Wild Highlands of Scotland May 27-June 13: Mountains, lochs, crofters, eagles and moors; study natural history in a castle near ancient Caledonian forests.

Shanghai Seminar May 27-June 16: American and Chinese faculty introduce sociology, art, literature and drama, language and applied arts. Weekends in lovely Suzhou and Hangzhou.

Alpine Countryside May 29-June 13 or September 11-26: Study folk culture, architecture, music, history and geology in a charming Austrian mountain village.

Toronto June 21-27: Special program of museum lectures and walking tours to experience the exciting diversity of this city's architecture. Also visit Stratford Shakespeare Festival and Niagara Falls.

Cotswold Countryside June 27-July 11 or July 11-25: Stay in Cirencester, with excursions to Oxford, Stratford and Bath. Visit archaeological sites, market towns, woolen mills and museums.

Adriatic Shores August 28-September 9: MTS *Argonaut* cruise with experts to study the rich history and cultural heritage in Italy and Yugoslavia including Urbino, Ravenna, Venice, Zadar and Dubrovnik.

Historic Cities and Romantic Roads of Germany August 29-September 12: Munich followed by choice of travel: Bavaria, the Black Forest, Würzburg, medieval Franconia, or East Germany.

Oxford/Smithsonian Seminar September 10-25: Historic Architecture and European Art are among in-depth courses taught by Oxford faculty. Stay in Worcester College with visits to Cambridge, Bath and Stratford for a performance.

Sailing the Greek Islands September 21-October 3: Set sail on the luxurious 317-foot, four-masted yacht *Sea Cloud* for an idyllic journey from Athens to Santorini, Crete and the coast of Asia Minor.

England's Narrow Canals October 2-13: Cruise through renowned countryside on several famous canals, assist with the operation of the locks, and meet with local preservation groups.

Italian Contrasts October 3-17: An extended stay in Florence, with visits to Tuscany and Umbria; or, explore Venice and the Lake District.

Egypt and the Nile October 5-22: Visit Cairo, then cruise aboard chartered river boat to explore spectacular sites.

Coming in October . . . Salzburg Seminar.

Write National Associates, A&I 1278 Smithsonian Institution, Washington, D.C. 20560 or call (202) 357-2477 for specific tour brochures

in Washington

Selected Studies Seminars

Enjoy the treasures of the Smithsonian in popular programs which combine excellent speakers and special behind-the-scenes tours. Choose from:

Post-Impressionist Masters March 7-12: Bill Kloss explores the outstanding paintings of artists such as Gauguin, van Gogh and Cézanne in lavishly illustrated lectures and tours of great museums.

Genealogical Research March 14-19 or March 21-26: Taught by Milton Rubincam, Marilyn Duncan and other leading authorities, participants learn how to conduct research in major genealogical repositories such as the National Archives, Library of Congress and DAR Library.

Religions of the Far East March 28-April 2: The great traditions and practices of Buddhism, Confucianism, Taoism, Shinto and Zen, which have inspired and motivated the greatest minds of Asia for more than 2,000 years.

American Painting in the 19th Century March 28-April 2: The great artistic achievements of renowned masters such as Copley, Cole, Church, Homer, Ryder and Eakins. Includes tours of the Capitol and National Gallery of Art.

Chinese Ceramics April 18-23: Connoisseurship of the timeless beauty and outstanding craftsmanship of famous masterpieces. Highlights exquisite export wares, enameled porcelains, recent discoveries, dating controversies, detection of fakes and the market today.

Quilting: Traditional to Modern April 25-30: Talented author and designer Jinny Beyer shares secrets of success in drafting, fabric and color coordination in lecture/workshops and tours of the outstanding collections of the Smithsonian and DAR.

In Tucson, Arizona

The New Astronomies May 16-21: Springtime in Arizona at two of the most advanced scientific research facilities in the world, the Fred Lawrence Whipple Observatory (formerly Mt. Hopkins) and Kitt Peak National Observatory, with lectures and tours by their directors and eminent staffs.

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or (202) 357-2475 for seminar brochures.

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FROM THE BOLLA FAMILY OF GREAT WINES.
IMPORTED BY THE JOS. GARNEAU CO., N.Y., N.Y.

By Richard Wolkomir

A hoax can be all too mean—but do you prefer reality?

One dark December night 20 years ago, the lights mysteriously died in the building where I lived with other university students. My friend Jan, an actor, rushed into my room with a flashlight.

"Some weird guy broke out of the asylum," he hissed. "He's supposed to be here in this. . . ."

The door had swung open, revealing a massive figure. Jan flashed his light and the hair stood up on my neck: the face was twisted, scarred, bristly up to the malevolent eyes.

"Do something!" Jan pleaded. Tentatively, I punched and missed. I was winding up for another cream-puff blow when Jan, sniggering, grabbed my arm.

The lights came on, revealing a pudgy biology student, sporting watercolor scars and string whiskers. Crowding behind this Creature from the Deep Id were my chums, joyfully chanting "Hoax! Hoax!"

As P. T. Barnum so suavely put it, "There's a sucker born every minute."

And why not? An artful hoax gives the spectator a starring role, even if it is as a patsy. And I like the way a hoax peps up reality's dull march with an occasional bunny hop. That must be why so many authors have liked bamboozlement.

For instance, in 1708, vexed by a charlatan astrologer, Jonathan Swift gleefully wrote a bogus obituary for the faker, whose career abruptly expired. H. L. Mencken arbitrarily designated December 28, 1917, as the 75th anniversary of the first American bathtub, a nonfact that later popped up in reference tomes, much to Mencken's delight.

A good hoax need not be as grandiose as that of the Cardiff Giant, the ersatz petrified man that had the whole country agog in the late 1800s. I enjoy a modest whimsy, such as the Manhattan telephone directory's listing of the suspicious-sounding "Rudolph Von Eggcream" or the "Society for Indecency to Naked Animals." Little fibs to jolly up the facts. For years, under "The Government of Montmartre," the Manhattan directory also had such sub-listings as "Montgolfier Brothers International Aerodrome Authority" and the "Montmartre Military Mission to the Royal Scottish Jacobite Government." I was glum when the "Government" lost a 1977 war with Ma Bell and had to cede all subsidiary listings.

My favorite hoax was 1835's electrifying news out of South Africa. The famous English astronomer Sir John F. W. Herschel, using a powerful new telescope at the Cape of Good Hope, was reported to have seen bison grazing on the moon!

According to the New York *Sun*, Herschel's telescope had revealed tropical forests, lakes, white beaches, green marble cliffs, amethyst mountains. Besides bison, Sir John was said to have seen blue goats, bears, pelicans, cranes and a basketball-shaped amphibian "which rolled with great velocity across the pebbly beach."

Herschel's most startling find, the *Sun* went on, was orange-furred humanoids, with leathery wings. Massachusetts ladies immediately got up a collection to send missionaries to these "batmen."

According to reporter Richard Adams Locke, the astronomer had achieved his breakthrough in telescope technology—"a transfusion of artificial light through the focal object of vision"—by adducing "the example of the Newtonian reflector, in which the refrangibility was corrected by the second speculum and the angle of incidence restored by the third."

And when Sir John dismissed such "discoveries" as journalistic moonshine, when Locke admitted concocting the interplanetary Tahiti to spoof a Scottish astronomer's theories on lunar fauna—then did an enraged public demand Locke's liver on a pyrite platter? Not at all.

Most victims applauded the hoax's éclat. Edgar Allan Poe praised Locke's prose. But I think the telling accolade came in 1873, when historian Frederic Hudson, still mesmerized by the flimflam, wistfully wrote: "It is not unlikely that the discoveries in the moon made in 1835 by Locke will yet be as fully verified."

I, too, would happily trade NASA's airless moon for periwinkle-blue billygoats. Sometimes, I find, reality simply isn't up to snuff. Then a good hoax can cheer up the imagination, add some fizz.

Edgar Allan Poe knew that. He knew that facts alone do not supply the human brain with all essential nutrients. In 1844, he wrote in the irrepressible New York *Sun*: "*The Atlantic has been actually crossed in a balloon!*" Seasoned with "quotes" from the intrepid pilots, the fraud was a screamer-headline sensation.

When a rival paper cried foul ("It's a humbug. Get another writer."), Poe blandly replied, in what I take to be a hoaxer's credo: "If the Victoria did not absolutely accomplish the voyage reported, it would be difficult to assign a reason why she should not have accomplished it."

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